

BALANCED INSANITY:  
AN ARGUMENT FOR THE INCLUSION OF TASKING,  
PROCESSING, EXPLOITATION, AND DISSEMINATION IN  
FUTURE SECURITY ASSISTANCE UNMANNED AERIAL  
VEHICLE PROGRAMS

by

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## APPROVAL

The undersigned certify that this thesis meets masters-level standards of research, argumentation, and expression.

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## *Abstract*

The changes in the threat posed by global terrorism may be drastic, especially when weapons of mass destruction (WMD) are involved. The coalition nature of the current war on terrorism may also change rapidly as coalition partners enter, leave, or rejoin the coalition. The United States and its coalition partners must take advantage of the capabilities of modern communications to transmit and share the most basic levels of intelligence to meet the threat posed by global, potentially catastrophic terrorism. Time spent analyzing raw information and collating it into finished analytical products as in the NATO alliance framework may simply not be available. The Cold War intelligence structure no longer achieves the nation's goals when America's alliances in the global war on terror are based on loose regional or global coalitions organized to meet specific threats.

Perhaps the most glaring example of the disconnect between America's stated policies regarding the global war on terror and its obsolete security assistance programs is the sale of intelligence unmanned aerial vehicles (UAVs) to foreign coalition partners. The United States, as the leader of the worldwide coalition against terrorism, is involved in maintaining the intelligence databases critical to success in a war that spans the globe. As the leading nation of this coalition it is in the best interests of the United States to maintain a global intelligence network capable of sharing critical information among its partners. If all coalition partners have access to interoperable intelligence systems, there is a decreased reliance on liaison officers, translators, and other less effective methods to achieve interoperability. A shared intelligence picture ensures the coalition's military commander has centralized control of intelligence.. With the direct exchange of intelligence, there is less of a chance for fog and friction to affect the coalition's intelligence capabilities. The United States uses its tasking, processing, exploitation, and dissemination (TPED) procedures to internally share intelligence information to all potential users but the nation has not included its TPED architecture in any security assistance sale of intelligence collection UAVs to date. The lack of a shared TPED structure limits the effectiveness of the coalition against terror, impeding efforts to win the war. The United States must decide if the benefits gained from sharing its TPED procedures through the security assistance program outweigh the costs associated with such a decision.

This thesis finds that to reap the full potential from future UAV security assistance programs the United States needs to include the TPED process in future security assistance transfers to its coalition partners in the global war on terror. The rewards of such a change in policy will not accrue without risk. The United States government needs to balance the coalition's security assistance requests, and the attendant risks of each potential coalition recipient of security assistance TPED, on a case-by-case basis. Such a process should allow the United States to increase the

interoperability of the coalition fighting the global war on terror while still maintaining a tight control on security. The United States should initiate a change in the security assistance program immediately to allow it to transfer TPED in future UAV security assistance programs whenever the government finds that the potential rewards of such a transfer outweigh the potential risks.

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## **Introduction**

The global war on terrorism is a new type of conflict for the United States. The longer the nation delays in adapting to the new world paradigm the more dangerous and costly the threat can become. During World War II and the Cold War, the United States could rely on relatively stable alliances for support against relatively stable and clearly identified enemies. Global terrorism, consisting of an evolving network of cells and structures that moves across and between borders, is an entirely different type of threat. To fight terrorism effectively the United States has established coalitions of willing states as opposed to a formal alliance. Most coalition members join the United States in these informal partnerships to meet specific objectives or for specific times, but rarely do so for the long haul.

This fundamental change in the nature of the threat facing the United States has not resulted in changes in its Cold War-era security assistance program. Current security assistance legislation rests on a Cold War model of stable coalition partners and relies on a bureaucratic apparatus that took five decades to build. Presidential administrations have used security assistance to meet their policy objectives since the program was initiated by President Roosevelt before the United States entered World War II up through President Bush's involvement in the global war on terror. During most of this period security assistance was provided in the context of a stable alliance structure designed to meet outside threats. The member states of the North Atlantic Treaty Organization (NATO) provide the most recognizable examples of American security assistance partners during this period. The United States transferred its most advanced fighter and transport aircraft, armored vehicles, and naval technology to NATO members as its leaders were secure in the knowledge that these weapons would be used within formal organizational, doctrinal, and training schemes to confront a common foe.

The NATO security assistance model may be no longer applicable as modern technologies, especially those associated with intelligence gathering and analysis, are not considered under existing legislation agreements. During the Cold War most intelligence sharing was done at the highest levels of national intelligence organizations because the

primary threat from the Soviet Union did not change significantly over time. This slow rate of change, largely driven by the speed of available technology to gather and process collected data, focused NATO intelligence sharing toward finished analytical products. A massive indications and warning structure insured that once the Soviet military machine began to rumble toward the west, the NATO alliance would have time to react.

The changes in the threat posed by global terrorism may be drastic, especially when weapons of mass destruction (WMD) are involved. The coalition nature of the current war on terrorism may also change rapidly as coalition partners enter, leave, or rejoin the coalition. The United States and its coalition partners must take advantage of the capabilities of modern communications to transmit and share the most basic levels of intelligence to meet the threat posed by global, potentially catastrophic terrorism. Time spent analyzing raw information and collating it into finished analytical products as in the NATO alliance framework may simply not be available. The Cold War intelligence structure no longer achieves the nation's goals when America's best allies in the global war on terror are based on loose regional or global coalitions organized to meet specific threats.<sup>1</sup>

Perhaps the most glaring example of the disconnect between America's stated policies regarding the global war on terror and its obsolete security assistance programs is the sale of intelligence unmanned aerial vehicles (UAVs) to coalition partners. The United States, as the leader of the worldwide coalition against terrorism, is involved in maintaining the intelligence databases critical to success in a war that spans the globe.<sup>2</sup> As the leading nation of this coalition, it is in the best interests of the United States to maintain a global intelligence network capable of sharing critical information among its partners. If all coalition partners have access to interoperable intelligence systems, there is a decreased reliance on liaison officers, translators, and other less effective methods to achieve interoperability.<sup>3</sup> A shared intelligence picture ensures the coalition's military commander has centralized control of intelligence that is released to individual coalition members. With the direct exchange of intelligence, there is less of a chance for fog and

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<sup>1</sup>A. Stuart Farson and others, *Security and Intelligence in a Changing World* (London: Frank Cass, 1991), 189.

<sup>2</sup>Cindy C. Combs, *Terrorism in the Twenty-First Century* (Upper Saddle River, NJ: Prentice Hall, 2003), 231-232.

<sup>3</sup>Paul Kennedy and others, *The Age of Terror* (New York: Basic Books, 2001), 150-151.

friction to affect the coalition's intelligence capabilities adversely. The United States uses its tasking, processing, exploitation, and dissemination (TPED) procedures to share intelligence information to all potential users, but the United States has not included its TPED architecture in any security assistance sale of intelligence collection UAVs to date.<sup>4</sup> The lack of a shared TPED structure limits the effectiveness of the coalition against terror, impeding efforts to win the war. The United States must decide if the benefits gained from sharing its TPED procedures through the security assistance program outweigh the costs associated with such a decision.<sup>5</sup>

This thesis finds that to reap the full potential from future UAV security assistance programs the United States needs to include the TPED process in future security assistance transfers to its coalition partners in the global war on terror. The rewards of such a change in policy will not accrue without risk. The United States government needs to balance the coalition's security assistance requests, and the attendant risks of each potential coalition recipient of security assistance TPED, on a case-by-case basis. Such a process should allow the United States to increase the interoperability of the coalition fighting the global war on terror while still maintaining a tight control on security. The United States should initiate a change in the security assistance program immediately to allow it to transfer TPED in future UAV security assistance programs whenever the government finds that the potential rewards of such a transfer outweigh the potential risks.

### **Background and Significance of the Problem**

The terrorist attacks of 11 September 2001 on the Pentagon and World Trade Center were traumatic events for the nation and their impact continues to resonate within the continuing global war on terrorism.<sup>6</sup> Although the scope of these terrorist acts was unprecedented in magnitude and psychological impact, the attacks themselves should not have come as a surprise. A widely recognized trend in terrorism highlighted the

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<sup>4</sup>William Cahill, Major, Chief, International C4ISR Programs, Deputy Undersecretary of the Air Force, International Affairs, 10 December 2004.

<sup>5</sup>Cahill Interview.

<sup>6</sup>The terrorist attacks on New York and Washington, D.C. that took place on 11 September 2001 are often referred to using the term 9-11 in this thesis.

increasing lethality of terrorist attacks through the 1990s.<sup>7</sup> In fact, terrorist attacks against the United States are not unusual and occurred repeatedly before 11 September. The hijacking of a National Airlines flight in 1961 was an early incident. One State Department report listed 105 global incidences of terrorism. Of these 105 incidences, 65 major terrorism events involved United States citizens.<sup>8</sup> Americans have been and continue to be the targets of numerous major terrorism attacks.<sup>9</sup> The 11 September attacks were nonetheless different in size and scope, and the strikes resulted in the largest number of casualties in any single foreign attack on United States soil.<sup>10</sup>

On 20 September 2001, in a speech to the grieving nation, President Bush announced that the U.S. was at war with terrorism and its support structure, be it groups or other nations.<sup>11</sup> The perceived scope and immediacy of the terrorist threat, especially in the mind of the American public, changed dramatically. Before 11 September the threat posed by WMD was central in the mind of most U.S. government leaders.<sup>12</sup> In the 2001 National Security Strategy (NSS), the “crossroads of technology and radicalism” was identified as the gravest danger facing the United States.<sup>13</sup> The immediacy of the threat posed by al Qaeda drove the US to adopt an offensive posture with military power identified as the nation’s primary instrument to fight terrorism.<sup>14</sup> In addition, the National Strategy for Homeland Security asserts that terrorism directly threatens the foundations of the United States.<sup>15</sup> The second Bush Administration, in many ways, sees the continuing global war on terror as a fight for its very survival.

The 2001 NSS forcefully affirms that the war’s first priority is “to disrupt and destroy terrorist organizations of global reach and attack their leadership; command,

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<sup>7</sup>“4 Decades of Worldwide Terrorism,” *Air Force Magazine*, February 2002, 70.

<sup>8</sup>“4 Decades of Worldwide Terrorism,” 70-71.

<sup>9</sup>United States Department of State, *Patterns of Global Terrorism, 2002* (Washington, D.C.: Government Printing Office, May 2002), 1. Cited hereafter as State Department, *Patterns*.

<sup>10</sup>“4 Decades of Worldwide Terrorism,” 70.

<sup>11</sup>George W. Bush, President of the United States, “Address to a Joint Session of Congress and the American People” Briefing presented on Capital Hill, Washington, D.C., 20 September 2001, URL: <http://www.whitehouse.gov/news/releases/2001/09/20010920-8.html>, accessed 12 January 2004.

<sup>12</sup>Martha Crenshaw, “The Psychology of Terrorism: An Agenda for the 21<sup>st</sup> Century,” *Political Psychology*, Volume 21 Issue 2, June 2000: 405-407.

<sup>13</sup>Bush Speech, 20 September 2001.

<sup>14</sup>The White House, *National Security Strategy of the United States* (Washington, D.C.: White House Printing Office, September 2002), i-ii. Cited hereafter as *National Security Strategy*, 2002.

<sup>15</sup>Office of Homeland Security, *National Strategy for Homeland Security* (Washington, D.C.: Government Printing Office, July 2002), i, 7, 9.

control, and communications; material support; and finances.”<sup>16</sup> The Strategy emphasizes that all instruments of American power will be used in combating and ending the terrorist threat against the United States, its allies, and friends. A key enabler to defeat terrorism is intelligence and the NSS explicitly calls for an “increased emphasis on intelligence collection and analysis.”<sup>17</sup> The document further pledges the nation to build more integrated intelligence collection capabilities to “provide timely, accurate information on threats, wherever they may emerge.”<sup>18</sup>

The National Military Strategy (NMS) similarly states that a safe and secure homeland is the nation’s first priority and is fundamental to U.S. military strategy. The NMS asserts that in order to defend against terrorist attacks on American soil, the military must possess the intelligence required to act effectively, as “decision makers at all levels and echelons require more precise knowledge and decision superiority.”<sup>19</sup> The U.S. must enhance its ability to collect, analyze, and disseminate “intelligence more effectively in order to function at an operational tempo that adversaries cannot match.”<sup>20</sup> All source intelligence, to include intelligence gathered by allies and coalition partners, is essential to ensuring our informational and decisional superiority.

The expanse of the global battle space, years of declining military budgets and the existence of a common threat initially motivated the United States to form a coalition against terrorism.<sup>21</sup> U.S. national strategy has long reflected a preference to conduct military operations in a coalition environment.<sup>22</sup> The actions of an aggressor can have far reaching effects on a region or even the world and these actors often seem too powerful to be defeated by a single nation. Regional stability can be achieved more quickly and less expensively, in terms of lives and national treasure, when coalitions are formed to meet common foes by sharing the burden of military action. Moreover, in the court of world opinion, a coalition of nations acting to curb aggression provides a degree of

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<sup>16</sup>National Security Strategy, 2002, 5.

<sup>17</sup>National Security Strategy, 2002, 14

<sup>18</sup>National Security Strategy, 2002, 16

<sup>19</sup>Joint Chiefs of Staff, *The National Military Strategy of the United States of America* (Washington, D.C.: Joint Chiefs of Staff, 28 September 2002), iv. Cited hereafter as *National Military Strategy*, 2002.

<sup>20</sup>*National Military Strategy*, 2002, 30.

<sup>21</sup>Susan C. McGovern, *Information Security Requirements for a Coalition Wide Area Network* (Monterey, CA: Naval Postgraduate School, June 2001), 2.

<sup>22</sup>Roger P. Labrie and others, *U.S. Arms Sales Policy Background and Issues* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1982), 65-66.

legitimacy to that action.<sup>23</sup> Coalition action is based on consensus by all of the participating nations and the United States recognizes that building and maintaining such a consensus is the biggest challenge in coalition warfare.<sup>24</sup>

Consensus within a coalition is very complex for a variety of reasons. These include: language and cultural barriers; differences in training, doctrine and tactics; and national laws and regulations regarding foreign command and control of national forces.<sup>25</sup> Technical incompatibilities and national laws and regulations regarding the sharing of sensitive military intelligence can create communication problems. Even our closest partners in the coalition against terrorism have cited concerns about information sharing during ongoing operations. For example, Australia questioned the strength of its intelligence sharing arrangement with the United States following revelations that a suspected terrorist financier had entered to Australia four times prior to being arrested in the U.S. for receiving \$455,000 from a group associated with Al Qaeda.<sup>26</sup> The Australian government openly questioned why the United States had not shared its intelligence on this individual during previous exchanges. For a coalition to maximize the combined power of each member state it requires strong coordination and control mechanisms. The lives of each nation's population depend upon interoperability; therefore, finding a means to resolve these interoperability problems is essential to the coalition's success.<sup>27</sup>

Intelligence interoperability is especially critical to the success of coalitions.<sup>28</sup> If the coalition members do not share a common threat picture based on sound intelligence they cannot expect to fight in the most efficient and effective manner possible. To meet this goal the standardization of intelligence collection assets via TPED must be a priority

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<sup>23</sup>Jake Thompson, "New focus proposed for NATO," *Omaha World Herald*, 24 January 2004, accessed via LexisNexis, 31 January 2005, URL: <[http://web.lexis-nexis.com/universe/document?\\_m=5986cfcbdb6f1b14c5cedb506ad59562&\\_docnum=5&wchp=dGLbVtz-zSkVb&\\_md5=7988efdec346cd736a9249caebfd61](http://web.lexis-nexis.com/universe/document?_m=5986cfcbdb6f1b14c5cedb506ad59562&_docnum=5&wchp=dGLbVtz-zSkVb&_md5=7988efdec346cd736a9249caebfd61)>.

<sup>24</sup>Thompson, "New focus proposed for NATO."

<sup>25</sup>McGovern, 2-3.

<sup>26</sup>"Labor demands answers from the US over terror suspect's visits," *Australian Associated Press*, 30 January 2004, accessed via LexisNexis, 31 January 2005, URL: <[http://web.lexis-nexis.com/universe/document?\\_m=172689b92beab77bb9726f66a03dd8de&\\_docnum=2&wchp=dGLbVtz-zSkVb&\\_md5=6d942edb0e880a61fca129096340dc9c](http://web.lexis-nexis.com/universe/document?_m=172689b92beab77bb9726f66a03dd8de&_docnum=2&wchp=dGLbVtz-zSkVb&_md5=6d942edb0e880a61fca129096340dc9c)>.

<sup>27</sup>"Labor demands answers from the US over terror suspect's visits."

<sup>28</sup>United States Consulate, Mumbai-India, "Myers says Coalition Partners Committed to Defeating Terrorism," 26 February 2004, URL: <<http://mumbai.usconsulate.gov/wwwwashnews1398.html>>. Accessed 19 December 2004.

while the coalition is still forming. The implementation of TPED mechanisms and policies, provided through security assistance transfers of UAVs, will ensure the coalition's intelligence products support the combined coalition goals.<sup>29</sup>

### Definitions

Before progressing some key terms need to be defined, including terrorism, coalition activity, intelligence, security assistance, unmanned aerial vehicle, and the component elements of TPED.

Title 22 United States Code, Section 2656f(d) defines terrorism and international terrorism.<sup>30</sup> Terrorism is considered by the United States government to be

“premeditated, politically motivated violence perpetrated against noncombatant targets by sub-national groups or clandestine agents, usually intended to influence an audience.”

<sup>31</sup> The term international terrorism means “terrorism involving citizens or the territory of more than one country.” These definitions make clear that terrorism is an international problem not confined to a specific country or region. If the United States is to triumph over terrorism, the battles will be waged throughout the world.<sup>32</sup>

A coalition activity is defined here as a “multinational action outside the bounds of established alliances, usually for single occasions or longer cooperation in a narrow sector of common interest.” A coalition is different than an alliance, which is defined as “the result of formal agreements (i.e., treaties) between two or more nations for broad, long-term objectives that further the common interests of the members.”<sup>33</sup> In a coalition, the members are much more loosely tied together. Alliances tend to be characterized by formal procedures designed to make military operations more effective, but in a coalition

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<sup>29</sup>United States Consulate, Mumbai-India, “Myers says Coalition Partners Committed to Defeating Terrorism.”

<sup>30</sup>United States Code, “Section 2656f. Annual country reports on terrorism,” *FindLaw.com*, online legislation, URL: < [http://caselaw.lp.findlaw.com/cascode/uscodes/22/chapters/38/sections/section\\_2656f.html](http://caselaw.lp.findlaw.com/cascode/uscodes/22/chapters/38/sections/section_2656f.html)>, accessed 15 January 2005.

<sup>31</sup>State Department, *Patterns*, xvi.

<sup>32</sup>Robert Barr, “Global Impact of Sept. 11 Attacks,” *Associated Press*, 31 December 2001, URL: <<http://www.cbsnews.com/stories/2001/12/19/2001/main321900.shtml>>. Accessed on 22 December, 2004.

<sup>33</sup>*Department of Defense Dictionary of Military Terms*, online ed., as amended through 30 November 2004, under the term “coalition,” URL: < <http://www.dtic.mil/doctrine/jel/doddict/data/a/00330.html>>, accessed on 7 January 2005.

the member states fight as they are.<sup>34</sup> To be successful in the global war on terror the United States will have to ensure a degree of interoperability with current or potential coalition partners. The United States will not have the time to build an allied consensus in the global war on terror as it did during the Cold War. NATO partners shared doctrine and procedures across the alliance due to shared traditions and heritage, but the coalition against terrorism may not have the time to build such robust measures. Time is absolutely critical to the success or failure of coalition operations and any impediment to the coalition's ability to react and preempt terrorist threats is both a weakness and vulnerability. To meet the challenges of international terrorism the coalition of the willing must become interoperable at all levels.

Intelligence was one of the first missions for the airplane in the United States, dating back to the First Aero Squadron's aerial support to Brigadier General John J. Pershing's pursuit of rebel forces under the command of Pancho Villa in Mexico during 1916.<sup>35</sup> For this thesis, intelligence is defined as the integrated capabilities to task, collect, process, exploit, and disseminate accurate and timely information that provides the awareness necessary to plan and conduct successful operations.<sup>36</sup> Today the United States continues to rely on intelligence, often provided through UAVs, to observe and analyze the meaning and impact of events all over the globe. Such UAV-derived intelligence provides support at the strategic, operational, and tactical levels of war. At the strategic level of war, intelligence provides the information required to formulate national strategy, policy, and plans to enable decision makers to "take appropriate actions before crises develop and to support the decision makers as crises unfold."<sup>37</sup> Similarly, operational-level UAV intelligence provides the information crucial to planning and executing operations to meet the commander's objectives.<sup>38</sup> Finally, at the tactical level, UAVs can provide intelligence focused on tactical warning, mission planning, targeting, and combat assessment.<sup>39</sup>

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<sup>34</sup>Farson and others, 189.

<sup>35</sup>James S. Corum and Wray R. Johnson, *Airpower in Small Wars: Fighting Insurgents and Terrorists* (Lawrence, Kansas: University Press of Kansas, 2003), 11.

<sup>36</sup>U.S. Air Force, Air Force Doctrine Document 2-5.2, *Intelligence, Surveillance, and Reconnaissance Operations* (n.p., 21 April 1999), 1. Cited hereafter as AFDD 2-5.2, *ISR Operations*.

<sup>37</sup>AFDD 2-5.2, *ISR Operation*, 7-8.

<sup>38</sup>AFDD 2-5.2, *ISR Operations*, 8.

<sup>39</sup>AFDD 2-5.2, *ISR Operations*, 8.

Security assistance is defined here as a “group of programs authorized by the Foreign Assistance Act of 1961, as amended, and the Arms Export Control Act of 1976, as amended, or other related statutes by which the United States provides defense articles, military training, and other defense-related services by grant, loan, credit, or cash sales in furtherance of national policies and objectives.”<sup>40</sup> The United States uses security assistance as one of the primary ways it provides support to coalition allies in the global war against terrorism. By outfitting its coalition partners with the same weapons, materiel, doctrine, and tactics, techniques, and procedures (TTPs) as used by American military forces, the coalition becomes much more interoperable.

The system provided by security assistance in this thesis is the unmanned aerial vehicle (UAV). A UAV is defined here as a “powered, aerial vehicle that does not carry a human operator, uses aerodynamic forces to provide vehicle lift, can fly autonomously or be piloted remotely, can be expendable or recoverable, and can carry a lethal or non-lethal payload. Ballistic or semi-ballistic vehicles, cruise missiles, and artillery projectiles are not considered unmanned aerial vehicles.”<sup>41</sup> UAVs allow coalition partners so equipped to utilize cutting-edge technology to collect, process, and disseminate intelligence throughout the coalition. By outfitting its coalition partners with the same UAV technology, the United States could achieve significant gains in intelligence interoperability and by extension, unity of effort against terrorist groups.

The system by which intelligence gathered from UAVs is distributed and processed is known as tasking, processing, exploitation and dissemination or TPED. TPED is usually tied to an intelligence collection discipline, such as imagery or signals intelligence, or to a specific collection asset, such as UAVs. Within the intelligence community, one often refers to “tasking” an imagery reconnaissance satellite, “processing” its raw collection, “exploiting” its processed information, and “disseminating” the resultant intelligence products. This explanation, however, might lead to the incorrect conclusion that TPED is a neat, serial process.<sup>42</sup> Furthermore, many

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<sup>40</sup>Department of Defense Dictionary of Military Terms, online ed., under the term “security assistance.”

<sup>41</sup>Department of Defense Dictionary of Military Terms, online ed., under the term “UAV.”

<sup>42</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 12, URL: < <http://www.fas.org/irp/agency/nima/commission/article14.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 12.

people incorrectly believe that TPED is a system. TPED is better understood conceptually as a “system of systems” because of the interrelated processes required to accomplish TPED although even this construct can be misunderstood.<sup>43</sup> Perhaps the best way to think about TPED is as the cluster of people, systems, and processes that provides context and meaning to the raw data amassed by an intelligence collection system.<sup>44</sup>

Using this definition, then, tasking is the process used to ensure that the right image gets taken, at the right time. If collection capacity is a scarce resource, then tasking includes the optimization of that scarcity. In the global war on terror, technical insight into specific collection systems is necessary to accomplish proper tasking. Consequently, a corps of trained coalition partners who share a common TPED language and frame of reference can reconcile the information needs of intelligence consumers and the tasking of collection systems critical in the global war on terror.<sup>45</sup>

Processing is the automated application of algorithms that transform raw collected information into a product better suited for exploitation by various groups of analysts who use the data for a diverse set of purposes. During processing there are usually heavy computing demands as well as a collector requirement for intimate technical knowledge.<sup>46</sup> In the global war on terror processing is the link in the TPED chain that transforms the raw collected data into information accessible to human analysts.<sup>47</sup>

Exploitation is the most abstract of the concepts and, perhaps for that reason, the easiest of the TPED functions to define. Exploitation comprises all those value-adding activities that transform information into intelligence or, more generally, the link that transforms information into knowledge.<sup>48</sup> In coalition activities this link in the TPED chain has the highest potential payoff for the United States. If the U.S. can train its coalition allies to exploit their own collected materials in a manner consistent with American standards, the payoff would be tremendous. The United States, in this one step, would vastly increase the number of analysts employed against terror while also gaining unique cultural insights from our coalition partners in their analysis.

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<sup>43</sup>NIMA Commission Final Report, Chapter 12.

<sup>44</sup>NIMA Commission Final Report, Chapter 12.

<sup>45</sup>NIMA Commission Final Report, Chapter 12.

<sup>46</sup>NIMA Commission Final Report, Chapter 12.

<sup>47</sup>NIMA Commission Final Report, Chapter 12.

<sup>48</sup>NIMA Commission Final Report, Chapter 12.

Generally, dissemination is thought of as simply getting the right information to the right place at the right time. Dissemination can be broken down into two parts: the physical process of getting it there, or distribution; and the logical process of deciding “what goes where.” Of the two, distribution historically appears to be the more expensive and difficult, and the most boring, because it relies on massive amounts of communications bandwidth to reach its intended destination. This required communications architecture is very expensive and usually runs along established communications pathways. The logical process of dissemination is by far the more intellectually demanding because the end-user of the information is often not quickly apparent.<sup>49</sup> Users may not even be aware that they have a requirement for the collected information, so a system that highlights all of the information available so that the user can discriminate in choosing which pieces to utilize in their analysis is a tremendous technical challenge.

### **Literature Review**

Although the body of literature in intelligence is extensive, UAVs and the TPED process have received scant treatment. Most published works on intelligence orbit one of three points. The first area is works that highlight the effectiveness of intelligence organizations and structures.<sup>50</sup> Secondly, in light of intelligence failures in the United States, it is not surprising that other scholars focus on the authorizations and oversight of intelligence operations.<sup>51</sup> Finally, the processes used by intelligence organizations to produce intelligence information have been studied in detail in a number of works.<sup>52</sup>

Current literature about UAVs tends to focus on a limited number of subjects. Most of this literature regarding UAVs is currently limited mostly to discussions of

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<sup>49</sup>NIMA Commission Final Report, Chapter 12.

<sup>50</sup>Examples include: Bill Gertz, *Breakdown: The Failure of American Intelligence to Defeat Global Terror* (New York: Plume Book, 2003), Bruce D. Berkowitz and Allan E. Goodman, *Best Truth: Intelligence in the Information Age* (New Haven, CT: Yale University Press, 2000), and Michael Herman, *Intelligence Services in the Information Age* (London: Frank Cass, 2001).

<sup>51</sup>Examples include: Richard A. Best, *Intelligence to Counter Terrorism: Issues for Congress* (Washington, D.C.: Congressional Research Service, 2002), David Charters, et al, *Intelligence Analysis and Assessment* (London: Frank Cass, 1996), and Michael Herman, “11 September: Legitimizing Intelligence?,” *Conflict Studies Research Center* (Sandhurst, U.K.: Royal Military Academy, August 2002).

<sup>52</sup>An example of this type of literature is Cindy C. Combs, *Terrorism in the Twenty-First Century* (Upper Saddle River, NJ: Prentice Hall, 2003).

mission types and capabilities of the unmanned systems themselves. UAVs have also been examined to determine their capabilities to execute missions currently performed by manned platforms.<sup>53</sup> Surprisingly little has been written about the role of UAVs in the ongoing global war on terror but this can be explained partially by classification issues.<sup>54</sup>

TPED processes and UAVs have not been discussed in any detail in the existing literature. Previous studies have ignored the critical links that tie intelligence platforms to the processes used to create actionable intelligence and the implications of these links to success in the current global war on terror. Those authors who have studied intelligence have largely ignored the entire framework of TPED, while maintaining that multinational and alliance operations are critical to defeating terrorism. Similarly, the current literature does not highlight the importance of TPED in UAV operations or the possibilities that shared interoperable intelligence systems enabled by TPED could provide to the global war on terror. This thesis seeks to fill this gap in the current literature by showing how the United States can modify its security assistance programs to provide this capability to coalition partners.

### **Preview of the Argument**

Chapter One examines the United States' security assistance program, beginning with an assessment of the current security assistance program's role in the current global war on terror. This review highlights the conceptual inputs of technology transfer to identify why the United States transfers military technology to its allies and coalition partners and then examines the history of security assistance in the United States to demonstrate how the program has evolved to meet the nation's requirements over time. The global war on terror requires such a modification to maximize the effectiveness of the security assistance support provided to coalition allies. This chapter concludes with an examination of the two primary security assistance programs currently used by the

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<sup>53</sup>Recent studies include: Tim Jordan, *Unmanned Aerial Vehicles: Role in Homeland Defense* (Maxwell AFB, AL: Air Command and Staff College, 2003), Matthew C. Smitham, *The Unmanned Aerial Vehicle: A Prediction of a New Air Force Culture* (Maxwell AFB, AL: Air Command and Staff College, 2004), and Craig J. Werenskjold, *The Effect of Unmanned Aerial Vehicle Systems on Precision Engagement* (Monterey, CA: Naval Postgraduate School, June 2002).

<sup>54</sup>A lone exception to this statement is Todd R. Phinney, *Airpower Versus Terrorism: Three Case Studies* (Maxwell AFB, AL: School of Advanced Air And Space Studies, June 2003)

United States to emphasize their critical similarities and differences in strengthening the coalition in the global war on terrorism. The United States has used and continues to use its security assistance programs to provide allied and coalition partners military systems to improve their capabilities to defend themselves and to act as interoperable partners with the United States in future conflicts. The United States only provides this equipment for reasons of self-interest and particularly, in the case of the global war on terror, to gain increased capabilities through coalition action. The current security assistance programs used by the United States have become too rigid and formalized to efficiently and effectively meet the needs of current and future United States-led coalitions against terrorism. The critical limitations in the current security assistance programs is their inability to account for the requirements of the global war on terror or to recognize that modern technology, such as UAVs, may require a different kind of support than their manned predecessors.

The United States has made great strides in improving the nation's capabilities to fight and win the global war on terrorism using security assistance programs. One of the initiatives taken in the name of greater coalition unity is the sale of America's best military technology to coalition partners to enable their continued military support. Under this aegis America's most capable manned, and unmanned, aircraft have been included in security assistance programs to alliance and new coalition partners. Chapter Two examines two security assistance case studies to highlight the similarities and differences of how the United States handles manned and unmanned aircraft security assistance programs. The Dutch F-16 Mid-Life Update (MLU) highlights the goals, included technology, and current status of a manned aircraft security assistance program while the Italian Predator unmanned aerial vehicle (UAV) demonstrates the limitations of current unmanned sales. The case of the Italian Predator security assistance program highlights, however, that there are limitations or impediments to the United States aid that are adversely affecting the support the United States provides its coalition partners and suggests that this security assistance program is failing to meet the current and emerging requirements of the war on terrorism. If the U.S. does not train its coalition allies on TPED sources and methods, or provide access to our intelligence databases to the new UAV users, the U.S. cannot take full advantage of our partners' new intelligence

collection capabilities. If the U.S. provides TPED and database access, however, it risks compromising or losing its present total control over the very intelligence and unique collection capabilities that have enabled the success achieved to date in the global war on terrorism.

Chapter Three outlines the TPED process used by the United States today, emphasizing its importance to potential coalition operations in the global war on terror, as well as highlighting that a foundation for a potential coalition TPED database exists today. This chapter then provides an overview of how a functioning TPED process should work, suggesting that the model for a coalition TPED process already exists within the DOD's DCGS. Although the United States has the capability for designing and leading an interoperable coalition TPED process, there are opportunities and potential drawbacks in doing so.

Chapter Four reviews the critical benefits and risks that can be expected if the United States decides to provide the coalition against terrorism an interoperable intelligence TPED process in future security assistance programs. The benefits of including TPED in future sales promises to increase dramatically the coalition's effectiveness and efficiency in fighting the global war on terrorism, but these benefits come at a cost to the United States. The risk associated with information security represents the greatest potential impediment to successful security assistance transfers of TPED technology. Potential costs and benefits in future security assistance transfers of UAV TPED will not be uniform. But security assistance programs have always been handled on a case-by-case basis, and UAV TPED does not require a change to this process. Using this construct, the weight associated with each of the potential costs and benefits will change depending almost entirely with the potential security assistance recipient. Such a process should allow the United States to increase the interoperability of the coalition while still maintaining a tight control on security while also managing the potential impact on its fielded military force and the potential future threat.

In the end, this thesis asserts the United States should initiate a change in the security assistance program to allow it to transfer TPED in future UAV programs when the government finds that the potential benefits of such a decision outweigh the potential risks.





## **Chapter 1**

### **The Security Assistance Program**

The United States uses its security assistance programs to provide allied and coalition partners with military systems to improve their capabilities. These capabilities are used by coalition partners to defend themselves and to improve interoperability with the United States. The United States subsidizes this equipment out of self-interest, usually to gain influence and to increase American access to foreign nations. An example, more notable for the attempt than the outcome, was denying Pakistan continued access to F-16s and spare parts as a result of that country's illegal nuclear weapons program. To ensure proper oversight and regulation of security assistance, the United States has developed a comprehensive bureaucracy to manage the program. That bureaucracy, however, has been slow to adapt to the realities of the global war on terror or to advances in technology, such as unmanned aerial vehicles (UAVs), both of which impose different requirements than Cold War weapons systems.

This chapter reviews the United States' security assistance program beginning with an assessment of the current security assistance program's role in the global war on terrorism. This review includes the theory of technology transfer to identify why the United States transfers military technology to its allies and coalition partners; the rationale behind security assistance; and the history of security assistance in the United States to accentuate how the program has evolved to meet changing national requirements. The chapter then concludes with an assessment of the two primary security assistance programs currently in use by the United States to emphasize their similarities and critical differences in strengthening coalition capabilities for the global war on terrorism.

## Security Assistance and the Global War On Terror

Since it was implemented as a key U.S. foreign policy strategy, security assistance has served the nation and its allies well. As the leader of the free world and the lone military superpower, the United States is committed to maintaining strong allies who share common military equipment, doctrine, and capabilities. This policy is articulated in the National Military Strategy (NMS), which states that training programs, combined exercises, military contacts, interoperability, and shared defense with potential coalition partners, as well as security assistance programs that include judicious foreign military sales, can strengthen the self-defense capabilities of our friends and allies.<sup>1</sup> Ultimately the United States undertakes security assistance agreements to shift some of the burden of providing self-defense to our allies.

The sale of security assistance materiel to eligible countries gives the United States the opportunity to access and influence the recipient countries and their respective regions.<sup>2</sup> Another benefit of the security assistance program is the reduction in the overseas presence of U.S. forces. Once allies are armed with state-of-art military equipment and training, they are more capable of defending territory until the U.S. deploys its forces to assist. Additionally, common military and support equipment within a host country greatly reduces the strategic lift requirement of the U.S. in the early stages of a crisis. This de facto forward presence assists in protecting U.S. vital interests abroad as the military continues to reduce its forward-based force structure.<sup>3</sup>

U.S. officials also believe that security assistance sales foster good relations with other military forces, enable those countries to better defend themselves, and reduce the price of U.S. weapons by spreading the cost over larger production runs.<sup>4</sup> A key element of the U.S. National Security Strategy (NSS) of engagement and enlargement is to bolster America's economic revitalization. This effort is "premised on a belief that the line

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<sup>1</sup>Michael N. Beard, *United States Foreign Military Sales Strategy: Coalition Building or Protecting the Defense Industrial Base* (Maxwell AFB, AL: Air War College, March 1995), 12 and Joint Chiefs of Staff, *The National Military Strategy of the United States of America* (Washington, D.C.: Joint Chiefs of Staff, 28 September 2002), iv. Cited hereafter as *National Military Strategy*, 2002.

<sup>2</sup>Beard, 12.

<sup>3</sup>Beard, 16.

<sup>4</sup>Joint Chiefs of Staff, Joint Publication 3-16, *Joint Doctrine for Multinational Operations* (Washington, D.C.: Government Printing Office, 5 April 2000), I-7. Cited hereafter as Joint Pub 3-16.

between the U.S. domestic and foreign policies has increasingly disappeared, that the U.S. must revitalize its economy if it is to sustain its military forces, foreign initiatives and global influences, and that the U.S. must engage actively abroad if we are to open foreign markets and create jobs for the American people.”<sup>5</sup>

The role of security assistance sales in reducing the cost of weapon systems required by the U.S. military became increasingly important during the 1990s. Between 1989 and 1998, the Department of Defense’s (DOD’s) total budget declined 30 percent in constant dollars and its procurement budget declined 50 percent in constant dollars. Development time for new weapons systems also became an issue as it took, on average, 15 years to move major weapons systems from the drawing board to the field.<sup>6</sup> To hold down annual acquisition costs and the inventory of weapon systems in the downsized military force structure, DOD often purchased fewer quantities of individual weapons than originally planned. Purchasing fewer systems reduces overall costs, but it increases the per unit cost at the same time. Production quantities can be increased and unit cost decreased if DOD or its contractors sell arms systems to a foreign government, particularly if contracts for the export sales are awarded at the same time the U.S. contract is awarded. If the contractor plans to produce additional units, it can purchase materials in bulk at discounted prices, capitalize on labor efficiencies, and spread fixed overhead costs over more units of production.<sup>7</sup> For example, the DOD saved at least \$342 million on its purchases of five major weapons systems because either the Department or its contractors also exported the systems to foreign governments.<sup>8</sup>

Fiscal savings are important, but they will not ensure the United States wins the global war on terrorism. Given the requirement to defeat terrorists globally, the United States must rely on its multinational coalition partners to take action. The challenges associated with coalition interoperability in the global war on terror are at least

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<sup>5</sup>Beard, 16.

<sup>6</sup>Ron Schneiderman, “High-Flying Defense Systems Poised to Take-Off,” *Electronic Design* (16 June 2003), online article, URL: <<http://elecdesign.com/Articles/Index.cfm?AD=1&ArticleID=5073>>, accessed 16 March 2005.

<sup>7</sup>United States General Accounting Office, *Department of Defense Savings From Export Sales Are Difficult to Capture*, Report to the Chairman and Ranking Minority Member, Subcommittee on Readiness and Management Support, Committee on Armed Services, U.S. Senate, GAO/NSIAD-99-191, September 1999, 1. Cited hereafter as GAO, *Department of Defense Savings*.

<sup>8</sup>GAO, *Department of Defense Savings*, 1-2.

proportional to those associated with joint interoperability, as the coalition both attempts to integrate systems designed by different manufacturers for different users. Additional complexities are introduced due to different customs, languages, doctrine, and equipment among the coalition partners.<sup>9</sup> The fact that the U.S. has not resolved all the issues associated with interoperability among its own forces indicates that there is much work to be done to ensure a degree of coalition interoperability. Security assistance programs allow the U.S. and its allies to utilize an existing foundation for their coalition struggle against terrorism.

Security assistance programs provide the initial steps for the United States and its coalition partners to develop a common military doctrinal framework. Doctrine provides military organizations, be they joint or coalition, with a common philosophy, language, and purpose. Doctrine is more than simply how we intend to fight; it is also the technical language with which we communicate commander's intent, battlefield missions, control measures, combined arms and joint procedures, and command relationships. Doctrine is another area where the mutual understanding that originated in security assistance programs will begin to pay dividends in sustained coalition action against terrorist groups wherever they are.

### **Technology Transfer**

The transfer of arms remains a vital part of interstate global relations. Historically, societies have sought to gain advantage over their opponents through military dominance including equipping their friends and allies. During the Peloponnesian Wars both Athens and Sparta sought to gain a military advantage by arming their allies and requiring military aid from them during their long conflict.<sup>10</sup> In this struggle for superiority, arms transfers continue to play an integral role in the relationships between nations.<sup>11</sup> The quickest way to gain an advantage through military technology is not to pour money into research and development. Instead most nations trust in the fast-follower business model which states that the second nation to develop a

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<sup>9</sup>Joint Pub 3-16, III-13-14.

<sup>10</sup>Robert B. Strassler, *The Landmark Thucydides* (New York: Simon and Schuster, 1996), 53.

<sup>11</sup>Roger P. Labrie and others, *U.S. Arms Sales Policy* (Washington, D.C.: American Enterprise Institute for Public Policy, 1982), 1.

new technology gains an appreciable time and economic advantage as compared to the initial technology developer.<sup>12</sup> The fast-follower strategy predicts that history favors those states that capitalize on the leader that fields new weapons technology, as the heaviest burdens in time and treasure are incurred by the first nation to employ it.<sup>13</sup> The allies of the developer can then take advantage of the initial state's investment by purchasing the new technology after it has been fielded. Although the desire to procure arms continues for national security purposes, the mechanisms for transfer have changed depending on both the world's political climate and the pace of technological advancement in the armaments field.<sup>14</sup> Given its overall superiority in military manufacturing technology, the United States dominates the arms transfer market.

Apart from the domestic defense budget and the need to preserve the strength of United States armed forces, especially as those forces are also attempting to meet guidance to transform their capabilities, there is no effort more important to the global defense posture of the United States in the global war on terrorism than our various defense-related international cooperation programs.<sup>15</sup> In the United States these arms transfers are combined under the term security assistance.<sup>16</sup> Security assistance programs have been successful instruments for furthering United States foreign and defense policy over the years. Past success, however, must not breed complacency as there is a continuous need for improving past security assistance successes and for ensuring the coalition's mutually reinforcing roles keep pace with changes in the real world.

### **History Of Security Assistance In The United States**

The first significant security assistance legislation in U.S. history occurred in 1898 when Congress authorized \$20 million to train and equip the Philippine armed forces. At the time the Philippines were ruled by a military governor appointed by the United States, and an insurgency began almost as soon as he arrived on the islands.

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<sup>12</sup>“Updating the Concept of Innovation,” *Innovative Technology Transfer* (April 2003), URL: <<http://aoi.cordis.lu/article.cfm?article=513>>, accessed 8 January 2005

<sup>13</sup>“Updating the Concept of Innovation.”

<sup>14</sup>Labrie, 5.

<sup>15</sup>Lansford, 132-133.

<sup>16</sup>Defense Institute of Security Assistance Management, *The Management of Security Assistance* (Wright-Patterson AFB, OH: Defense Institute of Security Assistance Management, June 2001), 43.

Assisting the Philippines marks the beginning of formal American security assistance programs. The money was not provided as a grant as in previous legislation. In exchange for the assistance, the United States gained access to 23 air and naval bases for a period of 99 years.<sup>17</sup> This early historical example of the United States using its security assistance program to gain bases in forward areas set a precedent for the United States to leverage its security assistance provided to coalition partners to gain access and basing.

In September 1940 President Roosevelt offered U.S. military equipment to the United Kingdom through his “Destroyers for Bases Deal.”<sup>18</sup> This program aimed to provide military aid to a historical ally without violating the neutrality of the United States. In exchange for destroyers needed to combat German submarines in the North Atlantic, Britain agreed to allow U.S. bases throughout the West Indies and Canada. Soon after, in his “Arsenal of Democracy” speech, President Roosevelt outlined a program whereby the United States would furnish those fighting the Axis powers with supplies, including food, machinery, military equipment, and services.<sup>19</sup> This served as the basis for the President’s Lend-Lease program defined in his “Four Freedoms” State of the Union speech to Congress in January 1941.<sup>20</sup> After a period of intense political wrangling, during which the President had to overcome the Congress’ preference for neutrality, the government eventually authorized the Lend-Lease Act of 1941. This legislation empowered the President to sell, lend, lease, and transfer such materiel under whatever terms deemed proper. This Lend-Lease program was originally intended only to aid Britain, the Commonwealth countries, and China but eventually reached allies all over the globe so long as they supported the United States in its fight against Germany and Japan. Although the security assistance was initially utilized to gain foreign military bases, the program also added to the prestige of the United States and cemented

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<sup>17</sup>Brian McAllister Linn, *The Philippine War, 1899-1902* (Lawrence, KS: University Press of Kansas, 2000), 13.

<sup>18</sup>Franklin D. Roosevelt, Message to the Congress, *Informing Them of the Exchange of Certain Overage Destroyers for British Naval and Air Bases* (Washington, D.C., 3 September 1940), URL: <<http://www.ibiblio.org/pha/7-2-188/188-19.html>>, accessed on 18 November 2004.

<sup>19</sup>Franklin D. Roosevelt, *Fireside Chat on National Security and the Common Cause* (Washington, D.C., 29 December 1940), URL: <<http://www.ibiblio.org/pha/7-2-188/188-21.html>>, accessed on 18 November 2004.

<sup>20</sup>Franklin D. Roosevelt, *Annual State of the Union Speech* (Washington, D.C., 6 January 1941), URL: <<http://www.libertynet.org/~edcivic/fdr.html>>, accessed 18 November 2004.

America's leadership of the Allied effort in World War II, and developed a degree of interoperability.

By World War II's end virtually all of America's allies, including the Soviet Union, were recipients of security assistance under the Lend-Lease Act. Between March and December 1941, Congress authorized a total of \$23 billion in Lend-Lease Assistance.<sup>21</sup> The extension of Lend-Lease Assistance to the Soviet Union, an ally in the war against Nazi Germany but an ideological opponent, highlights how the United States has provided security assistance to partners who did not share a common worldview but did share a common threat to their mutual existence. Many nations today have different worldviews but are important potential coalition partners in the global war on terror. Lend-Lease continued as a major foreign policy tool until September 1946. In its history the U.S. authorized a total of \$50.6 billion during the five-year program.<sup>22</sup>

By 1947, it was obvious to most international observers that the Soviet Union and the United States were becoming involved in a hostile competition for predominance. Security assistance began to change into a tangible manifestation of the executive branch's political policies as a substantial external threat, in this case Communism, began to emerge on the world stage. The Soviet Union's apparent intention after World War II was to dominate and control as much of Europe as possible. The American response was based on the containment policy developed by George Kennan, the director of the State Department's Policy Planning Staff. As described by Kennan, the main element of any United States policy toward the Soviet Union must be a patient, firm, and vigilant containment of Russian expansive tendencies.<sup>23</sup> The containment policy was largely founded on the belief that the United States economy could continue to expand and provide our allies with the military materiel they needed to counter communism. A similar belief exists today in debates regarding the amount of assistance the United States should provide its coalition allies in the global war on terror. The policy of containment served as the basis for the Truman Doctrine, first presented in a speech to Congress on March 12, 1947, but it also highlights how the United States armed its allies without

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<sup>21</sup>Alan P. Dobson, *US Wartime Aid to Britain, 1940-1946* (New York: St. Martin's Press, 1986), 1-3.

<sup>22</sup>The White House, *Fact Sheet on Conventional Arms Transfer Policy 2.17.95* (Washington, D.C.: Office of the Press Secretary, 17 February 1995), 1.

<sup>23</sup>"George Kennan: The Sources of Soviet Conduct (1947)," *The History Guide*, URL: <<http://www.historyguide.org/europe/kennan.html>>, accessed on 18 November 2004.

direct monetary repayment in the war against a common foe. Security assistance, largely in the form of grants, could easily be utilized today to allow economically disadvantaged coalition partners access to modern military technology to increase their military effectiveness and value to the coalition.

The modern security assistance program as we know it today really began with the Truman Doctrine. President Truman announced in 1947 that U.S. arms and advisors would be sent to Greece and Turkey to assist in their struggle against ongoing Communist insurgencies and threats.<sup>24</sup> The Truman Doctrine committed the United States to containing Communism throughout the world by aiding countries that requested help against Soviet expansionism. Congress enacted the Greek-Turkish Aid Act of 1947 to cement the American response to this new threat by providing a \$400 million grant to Greece and Turkey.<sup>25</sup>

Security assistance legislation was refined and expanded in 1949 with the passage of the Mutual Defense Assistance Act, a security complement to the Marshall Plan's economic aid to Western Europe.<sup>26</sup> The Act created what became a central element of U.S. foreign aid, the Military Assistance Program (MAP), which was the statutory basis both for military aid to the new NATO and for Foreign Military Sales (FMS) to other allies.<sup>27</sup> This legislation was followed by the Mutual Security Act of 1951, which consolidated the authorization for military and economic aid into one statute and established a Mutual Security Agency to administer the distribution of military and economic assistance.<sup>28</sup> By authorization, the disbursement of economic assistance was specifically made for the purpose of sustaining the military capabilities of friendly and allied nations. The act consolidated several prior statutes authorizing military aid to

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<sup>24</sup>Howard Jones, *A New Kind of War* (New York: Oxford University Press, 1989), vii-ix.

<sup>25</sup>Duncan L. Clarke, Daniel B. O'Connor, and Jason D. Ellis, *Send Guns and Money: Security Assistance and U. S. Foreign Policy* (Hartford, Connecticut: Praeger, 1997), 9.

<sup>26</sup>United States Congress, *Mutual Defense Act of 1949* (Washington, D.C.: Government Printing Office, 1949), 131-134, 275-276.

<sup>27</sup>David Reynolds, "Marshall Plan Commemorative Section," *Foreign Affairs* (May/June 1997), URL:<<http://www.foreignaffairs.org/19970501faessay3823-p30/david-reynolds/marshall-plan-commemorative-section-the-european-response-primacy-of-politics.html>>, accessed on 20 November 2004.

<sup>28</sup>National Security Council, *NSC History*, URL: <<http://www.whitehouse.gov/nsc/history.html>>, accessed on 18 November 2004.

Greece, Turkey, the Philippines, Iran, and South Korea under this one legal umbrella.<sup>29</sup> This policy initiative extended support to foreign nations all over the world whose only shared feature was a resistance to communism. Just as the Marshall Plan was designed to rebuild the economies of countries devastated by World War II, MAP and FMS were developed to rebuild conventional military capabilities and help defeat communist threats.

Finally, in this early Cold War period, the cornerstone of the Eisenhower Administration's aid program was the Mutual Security Act of 1954.<sup>30</sup> This act repealed all previous legislation and authorized multiple foreign aid recipients under the control of the Defense Support Program. The intent behind the Act was to channel to friendly countries the commodities, services, and financial assistance designed to sustain military effort. The Act also authorized the FMS credit program and allowed the extension of security assistance to U.S. alliance partners.<sup>31</sup> This Act highlighted the United States' desire to do more than provide military hardware to its alliance partners; it now wanted to include the logistical support necessary for the effective employment of the transferred military hardware. This period also highlighted United States aims to transfer some of the responsibility in the war against communism onto its allies at a time when the United States was drawing down its own conventional forces.

Again in 1961 the entire foreign aid system was reorganized. Congress consolidated all of the major aid programs, including FMS, MAP, and security assistance for economic support, into the Foreign Assistance Act. This Act created the Agency for International Development (AID) and re-authorized peacekeeping operations.<sup>32</sup> For the first time, the 1961 Act permitted the use of economic support funds for political purposes (instead of solely for sustaining military capabilities).<sup>33</sup> This Act underscored American designs to use security assistance as a bargaining chip to induce foreign nations to align with the United States to gain the economic support of specific political parties or to keep key nations, such as Israel, as viable partners. All security assistance legislation

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<sup>29</sup>Clarke, 9.

<sup>30</sup>President Dwight Eisenhower, *Message from President Eisenhower to the Congress* (5 Jan 1957), URL: <<http://www.jewishvirtuallibrary.org/jsource/US-Israel/ikedoc.html>>, accessed on 18 November 2004.

<sup>31</sup>Clarke, 10.

<sup>32</sup>United States Congress, *Foreign Assistance Act of 1961* (Washington, D.C.: Government Printing Office, 1961), 1-24.

<sup>33</sup>Congress, *Foreign Assistance Act of 1961*, 18-24.

since 1961 have been amendments to the 1961 Foreign Assistance Act. With these changes, the Foreign Assistance Act remains the principal legal foundation for U.S. foreign aid including security assistance.<sup>34</sup>

In 1969 President Nixon articulated the Nixon Doctrine, under which the United States would “look to the nation directly threatened to assume the primary responsibility of providing the manpower for its defense.”<sup>35</sup> Nixon also felt that more of the military assistance costs should be shifted abroad, and the level of military grants should be brought under control by efforts to replace grant aid with credits and sales.<sup>36</sup> In a further reaction to the Vietnam experience, sending arms instead of troops offered the Nixon Administration a way to exert military influence throughout the Third World without taking on the political risks or paying the economic costs involved with direct military intervention.<sup>37</sup> Nixon determined that the United States should reduce its presence abroad, while maintaining treaty commitments and demonstrating a willingness to continue to provide security assistance. Nixon felt these policy changes would shift more of the burden for the defense of other nations onto those countries themselves.<sup>38</sup>

Congressional concern about the level and purpose of security assistance arms transfers was raised by the conduct of U.S. equipped forces during the Vietnam War. As a result of these concerns the Foreign Assistance Act of 1973 mandated a reduction in the role of the U.S. government in security assistance in the furnishing of military equipment and services to foreign countries. In the authorizing legislation, Congress advised the Executive Branch to return arms transfers to commercial sales channels and to reduce FMS to the maximum extent possible.<sup>39</sup> The following year, the administration was directed to submit each pending foreign military sale exceeding \$25 million to Congress for approval in advance as part of the Nelson Amendment. Congress could then veto

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<sup>34</sup>Clarke, 10.

<sup>35</sup>Douglas S. Blaufarb, *The Counterinsurgency Era: U. S. Doctrine and Performance* (New York: Macmillan Publishing Company, 1977), 63.

<sup>36</sup>Lloyd N. Hoover, *Military Assistance and the Hoover Doctrine* (Maxwell AFB, AL: Air War College, April 1971), 6.

<sup>37</sup>William D. Hartung, *And Weapons for All* (New York: Harper Collins Publishers, 1994), 22.

<sup>38</sup>Hoover, 7-9.

<sup>39</sup>United States Congress, *Foreign Assistance Act of 1973* (Washington, D.C.: Government Printing Office, 1973), 1-8.

these sales if both Houses voted to do so within 20 days of notification.<sup>40</sup> The role of Congress in the application of security assistance increased dramatically during this period as members attributed a number of the ills of Vietnam to the existing security assistance policy. Congressional mistrust of security assistance established a new trend for the program, one characterized by an increasingly restrictive bureaucratic process.

Amid continuing concern about the utility of arms sales and military assistance, Congress passed the International Security and Arms Export Control Act of 1976. The Arms Export Control Act (AECA) again consolidated the laws governing U.S. arms sales. It covered both cash and credit sales and those sales made by both the U.S. government and private commercial contractors. The AECA separated the International Military Education and Training (IMET) program from the larger MAP program and mandated a phase-out of the latter. Section 104 of the Act also extended the time under the Nelson Amendment during which Congress could disapprove a sale to 30 days.<sup>41</sup> Finally, while allowing for exceptions, section 502(b) incorporated a strong human rights provision that sought to limit arms sales to those countries with a poor human rights record.<sup>42</sup>

Later that same year, Congress further expanded its control over the arms sales programs in 1976, when it passed legislation that would have placed an annual \$9 billion ceiling on all U.S. arms sales. President Ford vetoed this definite ceiling, but Public Law (PL) 94-329 did contain an expression of the “sense of Congress” that FMS should not exceed “present levels.”<sup>43</sup> The compromise legislation signed by President Ford changed the title from “The Foreign Military Sale Act” to “International Security Assistance and Arms Export Control Act of 1976.”<sup>44</sup>

Those members of Congress who felt that U.S. arms transfers warranted greater control and scrutiny initially found an important ally in 1976. During the Presidential

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<sup>40</sup>Samuel L. Jones, *An Analysis of Foreign Military Sales Management Viewed at the Field Activity Level* (Monterey, CA: Naval Postgraduate School, September 1979), 16.

<sup>41</sup>United States Congress, *Conference Report on International Security Assistance and Arms Control Export Act of 1976* (Washington, D.C.: Government Printing Office, 1976), 4.

<sup>42</sup>Clarke, 10.

<sup>43</sup>Edwin W. Rider and Fred A. Logan, *The Background and an Analysis of the International Security Assistance and Arms Control Act of 1976* (Maxwell AFB, AL: School of Systems and Logistics, September 1977), 158-161.

<sup>44</sup>Rider, 88-97.

election campaign, Jimmy Carter was strongly critical of past U.S. arms transfer policies and promised, if elected, to take executive action to revise U.S. roles in these areas.<sup>45</sup> On 19 May 1977, President Carter issued a new executive policy, Presidential Directive 13 (PD-13) covering the U.S. role in international arms transfers.<sup>46</sup> The strongly worded preface reiterated his desire for a reduction in the current U.S. role. The public statement which was released with PD-13 indicated that arms transfers would henceforth be viewed as an “exceptional foreign policy instrument” and this policy objective would be implemented both through an annual ceiling on U.S. arms transfers and through multilateral discussions with other supplier and recipient countries.<sup>47</sup> President Carter’s stance, in sharp contrast to those of the Nixon and Ford Administrations, was the first initiative of its kind coming from the Executive Branch.<sup>48</sup>

President Carter’s personal involvement was insufficient to limit the growth of U.S. arms sales. Under the Carter Doctrine, U.S. arms sales initially decreased, but eventually rose to a record-level \$18.2 billion in 1979.<sup>49</sup> In fact, the defining policy achievement of the Carter Administration, the Camp David Peace Accords, contained multi-billion dollar arms credits for both Egypt and Israel in exchange for their support.<sup>50</sup> The result, which was contrary to a stated policy of reducing international arms sales, helped earn President Carter the Nobel Peace Prize in 2004. But the level of security assistance set an important precedent for future programs because it suggested that, in conjunction with negotiation, security assistance could help to achieve a better peace by providing military support to two traditional enemies. Today, the United States should build on this precedent and provide security assistance to nations that want to join the coalition in the global war on terrorism despite previous disagreements.

President Reagan’s security assistance policy ran in diametric opposition to the one implemented during the Carter administration. Reagan believed arms sales were critical to countering mounting Soviet influence abroad.<sup>51</sup> In July 1981, President

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<sup>45</sup>Joanna Spear, *Carter and Arms Sales* (New York: MacMillan, 1995), 76.

<sup>46</sup>Spear, 86-96.

<sup>47</sup>Spear, 86.

<sup>48</sup>Spear, 193-194.

<sup>49</sup>Spear, 142.

<sup>50</sup>Spear, 140-143.

<sup>51</sup>Kenneth W. Thompson, *Arms Control: Alliances, Arms Sales, and the Future* (Lanham, MD: University Press of American, 154-156.

Reagan formally approved his Administration's policy concerning the transfer of conventional arms. Whereas the Carter policy regarded arms transfers as an exceptional implement, the Reagan policy viewed the transfer of conventional arms and defense equipment as an essential element of its global defense posture as well as an indispensable component of its foreign policy. The security assistance policies of the current Bush Administration are parallel to those created during the Reagan Administration.

President Reagan believed the United States could not defend Western security interests alone against the growing Communist threat. During his Presidency the United States no longer regarded the security requirements of allies as an alternative to a direct U.S. commitment or capability, but rather as a complement to them. The United States now assessed arms transfers in light of the net contribution such transfers would make to U.S. global or regional security, thereby in effect complementing and reinforcing the previous Nixon Doctrine.<sup>52</sup> The current use of security assistance in the global war on terror continues to build on this foundation.

The increased security assistance to allies accomplished Reagan's overall goal of increasing American support for anti-communist regimes but these gains did not occur without adverse effects. The negative side-effects of increased arms sales stemmed not from selling the weapons, which increased foreign dependence on the U.S. and also increased the flow of money to defense contractors, but from the nature of the regimes who received them. For example, arms transferred to Afghanistan ended up in the hands of Islamic mercenaries who later returned home to Iran and Libya armed with U.S. technology.<sup>53</sup> To make matters worse, the Pakistan Intelligence Directorate decided which mujahaddin groups received the weapons transferred through its territory. Unfortunately, the preponderance of the weaponry went to a Moslem fundamentalist faction which viewed the United States with a degree of hostility.<sup>54</sup> The result of the increased flow of arms into Afghanistan was the retreat of Soviet forces but U.S. forces

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<sup>52</sup>Defense Institute of Security Assistance Management, 21-22.

<sup>53</sup>Tim Weiner, "U.S. Will Try to Buy Antiaircraft Missiles Back from Afghans," *The New York Times* (24 July 1993).

<sup>54</sup>Ted G. Carpenter, "The Unintended Consequences of Afghanistan," *World Policy Journal* (Spring 1994), 121.

would later fight against Taliban and Al Qaeda members equipped with some of those arms during Operation Enduring Freedom.<sup>55</sup>

The first Bush Administration did not issue a distinctive conventional arms transfer policy, and continued the earlier Reagan policies. In the broadest sense, the belief that international arms sales represented a critical foreign policy tool of the executive branch allowed President Bush to maintain pressure on the crumbling Soviet Union.<sup>56</sup>

In April 1990, President Bush issued a policy directive concerning offsets, which are partial payments for arms purchases utilizing goods and services instead of cash. As a matter of background, it had been DOD's policy since May 1978 not to enter into government-to-government offset agreements because of the issues attendant in executing such provisions.<sup>57</sup> The Bush policy recognized that offsets had become a common feature of international trade and that unusual commercial compensation practices belonged within the realm of private industry.<sup>58</sup> The Bush administration's offset policy provided explicit principles and guidance and stated that any policy exceptions would require Presidential approval through the National Security Council.<sup>59</sup>

The August 1990 Iraqi invasion of Kuwait, and the subsequent January/February 1991 Operation Desert Shield/Desert Storm which liberated that state, illustrated the overwhelming effectiveness of American combat arms in a coalition environment. A key lesson learned that is often ignored, however, was that those operations also demonstrated the value of the American security assistance program. For many years prior to Desert Storm, the United States had built strong security relationships with friendly governments in the Persian Gulf, as well as with other nations that joined the United Nations' coalition.<sup>60</sup> These relationships paid off in equipment and doctrinal interoperability,

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<sup>55</sup>Douglas Jehl and David E. Sanger, "U.S. Expands List of Lost Missiles," *New York Times* (6 November 2004), URL: <[http://www.crows.org/ADVOCACY/Legislative/ManPads/NYTimes\\_11062004.pdf](http://www.crows.org/ADVOCACY/Legislative/ManPads/NYTimes_11062004.pdf)>, accessed on 26 November 2004.

<sup>56</sup>United States Department of State and Defense Security Assistance Agency, *Congressional Presentation for Security Assistance Program FY92* (Washington, D.C.: Government Printing Office, 1991), 38.

<sup>57</sup>United States Department of Defense, *Department of Defense Federal Acquisition Supplement* (Chicago: Commerce Clearing House, Inc., 1990) para. 34,010.

<sup>58</sup>The White House, *Presidential Policy on Offsets in Military Exports* (Washington, D.C.: Government Printing Office, 16 April 1990), 46-47.

<sup>59</sup>The White House, *Presidential Policy on Offsets in Military Exports*, 46-47.

<sup>60</sup>Hartung, 140.

lessons learned from coalition training, and political influence which led to direct and indirect support the American military objectives.<sup>61</sup> The previous American security assistance programs laid the foundation for operational success that resulted in an Iraqi defeat in much the same way that the current security assistance program can be seen as laying the foundation for victory in the global war on terrorism.

President Clinton's security assistance policy did not represent a dramatic break from the Reagan and Bush approach to arms sales. In essence, the Clinton policy reinforced the concept that the transfer of conventional arms is a legitimate instrument of U.S. foreign policy, especially in cases where it enables the U.S. to help allies while also supporting the U.S. industrial base.<sup>62</sup> The Clinton policy gave increased weight to the specific conditions in each region, highlighting the changed world environment of the post-Cold War era.<sup>63</sup> However, the Clinton Administration also tried to build restraint into its security assistance policies. President Clinton's policy noted that "U.S. conventional arms transfer policy promotes restraint, both by the U.S. and other suppliers, in transfers of weapons systems that may be destabilizing or dangerous to international peace."<sup>64</sup> The level of attention paid to the human rights records of potential buyers never reached the levels of the Carter Administration, but did receive more of a focus during the Clinton era than it did in the intervening years.

The second Bush Administration did not make major changes in any security assistance programs until after 11 September 2001. Shortly after the terrorist attacks, the Bush administration relied heavily upon security assistance programs as a way of both expanding and assisting coalition partners in the war on terror.<sup>65</sup> Security assistance for Pakistan, as well as other countries the Bush Administration wanted to access or influence in the region, became critically important to the Administration. The White House sent an anti-terrorism bill to Congress that contained provisions that would have lifted all restrictions on military aid and arms transfers for the next five years in

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<sup>61</sup>Hartung, 146.

<sup>62</sup>Defense Institute of Security Assistance Management, 29-30.

<sup>63</sup>United States Department of State Dispatch, *U.S. Conventional Arms Transfer Policy* (Vol. 6, No. 9, 27 February 1995), 337.

<sup>64</sup>United States Department of State Dispatch, *U.S. Conventional Arms Transfer Policy*, 337-339.

<sup>65</sup>Tamar Gabelnick, "Security Assistance After September 11," *Foreign Policy In Focus* (Volume 7, Number 4, May 2002), URL: < <http://fas.org/asmp/library/articles/fpif-911.htm>>, accessed 7 January 2005.

cases where doing so would help fight terrorism.<sup>66</sup> The provision also specifically lifted bans on counter-terrorism and non-proliferation aid for states with gross and consistent human rights abuses or a history of non-cooperation on counter-terrorism.<sup>67</sup>

After strong criticism from Congress, the proposal was scaled back to a request to lift remaining sanctions on Pakistan for two years and was approved into law in October 2001. The new legislation shortened the congressional notification period for transfers of weapons to pre-approved coalition partners from current U.S. stocks from 15 to five days, and transfers of excess U.S. weapons from 30 to 15 days if the transfers would respond to or prevent international acts of terrorism.<sup>68</sup> The longer approval process remains in place for coalition partners that are not pre-approved. The costs and benefits associated with this policy, as it relates to the transfer of UAVs and TPED, are explored in greater detail in Chapter Five. The Bush administration continues to use security assistance programs to enhance coalition participation in the war on terror.

The history of the security assistance program in the United States demonstrates how the program has evolved over time to meet foreign policy objectives. Initially the system was used on a direct exchange basis to gain overseas bases for military use, but over time the United States utilized security assistance to consolidate its leadership position among the allies during the Cold War. Security assistance has helped the United States retain its unprecedented level of global military and political influence since the demise of the Soviet Union, but the program faces new challenges in the global war on terrorism. To date, the security assistance program has not achieved the maximum gain from the security assistance it has provided to coalition partners fighting alongside the United States. The next section of this chapter examines the procedures currently used to provide security assistance to coalition partners to underscore these shortcomings.

### **Overview of Current Security Assistance Programs**

The mechanics of the current security assistance program influences the way the United States uses the program to support its goals in the global war on terror in general and the way that UAV sales and their associated TPED process are conducted in

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<sup>66</sup>Gabelnick, "Security Assistance After September 11."

<sup>67</sup>Gabelnick, "Security Assistance After September 11."

<sup>68</sup>Gabelnick, "Security Assistance After September 11."

particular. Security assistance consists of the group of programs which authorize the United States to provide defense articles, military training, and other defense-related services, by grant and by credit or cash sales, in furtherance of U.S. national policies and objectives.<sup>69</sup> These programs are authorized by the amended Foreign Assistance Act (1961) and AECA (1976).<sup>70</sup> The term security assistance is comprehensive and encompasses support in multiple forms: design and development, acquisition, storage, transportation, distribution, maintenance, logistical support, and disposition of materiel.<sup>71</sup>

A variety of means are employed in planning, developing, and administering security assistance support to eligible countries. The President has the general authority, through Congress, to acquire defense articles and services from any source and to provide this security assistance by grant, loan, or sale. The actual provision of defense materiel, services, and training is administered under one of the two methods commonly used by foreign governments to purchase U.S. defense goods. These methods are FMS and the direct commercial sales (DCS).<sup>72</sup>

The U.S. government or defense firms may sell defense items to a foreign government. With few exceptions, such as sales of cutting-edge technology which directly affect DOD production schedules or national security, the United States is officially neutral with respect to the acquisition of articles under FMS or through DCS contracts. The role of the government in DCS is normally limited to export controls, and this contributes to the failure of current security assistance programs to meet the needs of the United States in the global war on terror.

Over time the security assistance program has developed a large bureaucracy that keeps the program from rapidly responding to the time-sensitive requirements of the global war on terror. The security assistance program continues to treat its programs in the same manner used in dealing with NATO alliance partners during the Cold War. This system of checks and balances was effective in dealing with alliance partners who shared common doctrine and/or goals. This system does not meet the needs of short-term coalition partners who may not have an established security assistance record with the

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<sup>69</sup>United States Army Security Assistance Command, *United States Army Security Assistance Portal*, <URL: <https://usasa.army.mil/About/definition.htm>>, accessed on 14 December 2004.

<sup>70</sup>Defense Institute of Security Assistance Management, 63.

<sup>71</sup>Defense Institute of Security Assistance Management, 43-47.

<sup>72</sup>Defense Institute of Security Assistance Management, 47-49.

United States. Both FMS and DCS, as currently constructed, are not designed to include the sale of TPED items that are so important to the effective use of intelligence UAVs. The reasons for this critical shortfall will be discussed in detail in the following sections.

### **The Security Assistance Program Process**

The focus of current security assistance programs is the consistency with the American and foreign government's policy objectives. Any assistance provided by the U.S. must not only strengthen the recipient country's political and military objectives but also--more importantly--strengthen American national security.<sup>73</sup> In the global war on terror the recipient nation must demonstrate that it is ready to take on a role commensurate with the transfer of security assistance. This commonality of objectives represents the first and most important litmus test through which potential security assistance programs must pass.

Based on the nature of the request, the military Service with oversight over the defense article or service will normally receive a Letter of Request (LOR) from the foreign country through diplomatic channels.<sup>74</sup> In the case of most UAVs, the Air Force acts as the foreign government's point of contact for the requested security assistance program. Once the military Service receives the LOR, the request must be validated in three steps: first to ensure that the potential customer is an eligible security assistance recipient; next, that the article or service sought may be sold; and, lastly, that the request has been received through proper channels.<sup>75</sup> These initial steps are largely routine and administrative in nature.

Once the LOR has cleared the initial screening process, the military department drafts a Letter of Offer and Acceptance (LOA) which, in turn, is reviewed by the Defense Security Assistance Agency (DSAA).<sup>76</sup> During the Department of State's review of the LOA, Congress is normally notified of the impending sale. Although not a statutory requirement, this notification provides Congress with a 20-calendar day advance warning

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<sup>73</sup>Defense Institute of Security Assistance Management, 61-63.

<sup>74</sup>Defense Institute of Security Assistance Management, 151.

<sup>75</sup>Defense Institute of Security Assistance Management, 159-160.

<sup>76</sup>Robert L. Vandegrift, "The LOA Process," speech delivered to the Eighth Air University Airpower Symposium (Maxwell AFB, AL: Air War College, 5-7 March 1984), 1-2.

to allow for preliminary congressional examination. Once the 20-day period has expired, DSAA submits the formal 30-day notification to Congress as required by the AECA. The onus is then upon Congress to act if it objects to the LOA. If Congress fails to object to the proposed sale within 30 days, the DSAA submits the LOA to the requesting government for its review and acceptance or rejection.<sup>77</sup>

The means by which the United States fulfills the security assistance obligations vary according to the article or service requested. In the instance of existing military articles, the requested item is often provided from military surplus or government stocks. For new production procurement items, such as intelligence UAVs and their supporting TPED, the foreign security assistance requirements may either be consolidated with outstanding DOD requirements or contracted separately.<sup>78</sup> The problem with this process, however, is that the UAVs are treated like any other security assistance transfer, which does not take into account the unique capabilities and requirements of the platforms themselves. The unique capabilities and those requirements are discussed in Chapter Four.

Congress still plays a powerful role in U.S. security assistance by providing funding, writing laws, and attaching restrictive language to approved grants and assistance requests. Most terms and conditions of LOAs, the basic contract documents of security assistance agreements, come directly from language in the AECA. According to this Act, the Executive Branch must notify Congress of all sales over \$50 million and all sales of major defense equipment over \$14 million. This notification (referred to as a 36b notification after the section of the law requiring it) is formally forwarded to Congress 30 days before the LOA is offered for most Third World nations. The informal State Department notice mentioned above, combined with the formal DSAA notification, provides Congress with 50 days to consider a prospective security assistance program.<sup>79</sup> Therefore, even if the security assistance program is critical to a coalition partner's ability to support the United States effectively in the global war on terror, that nation will have to wait nearly two months before the security assistance transfer is approved.

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<sup>77</sup>Defense Institute of Security Assistance Management, 161-162.

<sup>78</sup>United States Congress, *"The Peace, Prosperity, and Democracy Act of 2004"* (Washington, D.C.: Government Printing Office, 1994), 21-22.

<sup>79</sup>Lora Lumpe, "Clinton's Conventional Arms Export Policy," *Arms Control Today* (May 1995), URL: <<http://www.fas.org/asmp/library/articles/actmay95.html>>, accessed on 21 November 2004.

Bureaucratic delays such as this one, designed against the backdrop of the Cold War when such delays did not seriously affect the geostrategic balance between NATO and the Soviet Union, hampers the ability of the United States to provide security assistance required to defeat or mitigate terrorism quickly and efficiently to coalition partners. This bureaucratic delay becomes prohibitive when it is added to the time inherent in building a TPED architecture transferred through security assistance.

The vast majority of security assistance requests pass through the congressional notification process without comment.<sup>80</sup> Some global regions receive more scrutiny than others. A prime example of this difference is the Middle East. Members of Congress have cited the security of Israel as a major potential stumbling block for any security assistance program intended for Middle East nations other than Israel. Members of both houses of Congress have been extremely wary of potential arms sales to Arab nations that have not signed a formal peace treaty with Israel. This hesitance to approve security assistance programs to Arab nations rapidly ignores a fundamental reality of the global war on terrorism. The majority of the terrorist groups the United States has identified as significant threats to the American public reside and recruit heavily in the Middle East. Instead of casting a wary eye at potential Arab coalition partners because of their relations with Israel, a situation that is not going to be resolved at any point in the near future, the United States needs to take the more near-term view in relation to security assistance to Arab nations willing to fight terrorism as part of a U.S.-led coalition. Recently, “contributions to the Peace Process” between Israel and her Arab neighbors have often served as a de-facto requirement for Arab security assistance and even then the willingness of the Arab government to fight alongside the United States in the global war on terror is viewed suspiciously by some members of Congress.<sup>81</sup> The nature of that assistance has changed, as the security assistance required by Arab coalition partners to combat terrorism is unlikely to threaten the existence of the Israeli state.

### **The Foreign Military Sales Program**

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<sup>80</sup>Defense Institute of Security Assistance Management, 161-162.

<sup>81</sup>Lumpe, 159.

When a security assistance sale is initiated by government-to-government contact the program is normally provided through the FMS.<sup>82</sup> An FMS agreement is the means by which the United States sells defense articles and services to foreign governments or international organizations. The FMS contract is a sales agreement directly between the U.S. government and the foreign recipient government. FMS is a non-appropriated program through which eligible foreign governments purchase defense articles, services, and training from the United States government. The purchasing government pays all costs that may be associated with a sale, and this cost is the major limitation preventing many coalition partners in the global war on terror from using FMS. Many of the coalition partners do not have the ability to pay the full cost for UAVs and TPED and so they cannot enter into formal FMS contracts.

For each sale there is a signed government-to-government agreement normally documented on a LOR and LOA between the U.S. government and the foreign buyer. Each LOA is commonly referred to as a “case” and is assigned a unique case identifier for accounting purposes. The U.S. government then contracts with a U.S. defense contractor for the items requested by the foreign buyer. The foreign government pays the U.S. government for the security assistance program directly. The U.S. in turn pays the contractor for its services. The Defense Federal Acquisition Regulation Supplement (DFARS) details the procedures to be followed in negotiating and pricing FMS contracts and specifies that these acquisitions are to be conducted under the same acquisition and contract management procedures as any other defense acquisition. In other words, U.S. laws and regulations are applicable regardless of the fact that much of the effort may be conducted overseas.<sup>83</sup> This method works well for major platforms that do not require detailed training in classified techniques used by the United States to maximize the effectiveness of the equipment. This process does not work well when the foreign buyer needs access to classified methods and means to get the most out of the platform, such as UAVs using TPED. The contractor hired by the United States to fulfill the FMS contract

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<sup>82</sup>Michael K. Woodward, *An Analysis of the Impact of Offset Requirements on U.S. and Defense Industry* (Monterey, CA: Naval Postgraduate School, March 1995), 8.

<sup>83</sup>United States Department of Defense, *Department of Defense Federal Acquisition Supplement*, Part 225 “Foreign Acquisition,” 225.73 1-5.

may not have insight into the TPED process and so the entire transaction squanders an opportunity to develop intelligence interoperability with the foreign government.

Although the U.S. government is the entity entering into the agreement with the foreign government, it is often the defense contractor who has conducted the bulk of the “sales pitch” to the foreign government, often investing months of time and large quantities of money in marketing its products to potential foreign buyers.<sup>84</sup> By the time the FMS agreement is signed, the prime contractor has had extensive interaction with the buying nation’s agents, including an often heated competition with other major arms-exporting nations. This competition may lead defense contractors to gloss over the TPED requirements for UAV systems they can provide to foreign buyers. If the defense contractor highlighted the fact that despite receiving the best American UAV platform, the purchaser may not receive any training on the TPED needed to efficiently and effectively employ the system due to security concerns, the sale might be endangered. It is not in the best interests of the contractor to identify such shortfalls, and because the United States government does not take part in the discussions at this early stage, coalition partners could purchase systems without realizing the full consequences of their decision.

In many FMS arrangements, the contractor further sub-contracts with multiple U.S. and foreign contractors. Often, the major contractor has agreed to utilize host nation industry as subcontractors in a co-production agreement where the foreign government acquires the technology and competence to manufacture a defense part or item.<sup>85</sup> That part is then used in the final product purchased by the foreign buyer or may be used in products for other customers. Other agreements call for the U.S. firm to purchase an agreed upon amount of foreign manufactured goods and services which can include a wide variety of categories including furniture, candy, or even clothing, and market it in the U.S. for the foreign government. Such agreements are called “offsets” because the agreement to purchase foreign items is meant to offset some specific amount or percentage of that country’s expenditures for U.S. defense items.<sup>86</sup> In either case, offsets and co-production arrangements result in increased interaction between the major

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<sup>84</sup>Defense Institute of Security Assistance Management, 282.

<sup>85</sup>Defense Institute of Security Assistance Management, 282.

<sup>86</sup>Defense Institute of Security Assistance Management, 282-283.

contractor and members of the host nation.<sup>87</sup> These offsets can undermine the full effectiveness of UAV security assistance programs because the foreign buyer often plans to purchase the airframe itself and then design its TPED using a domestic contractor. This contractor then designs the TPED in a manner consistent with past practices, not necessarily consistent with U.S. interoperability. A detailed examination of such a case study is presented in Chapter Four.

In general, foreign buyers choose to enter into FMS security assistance programs because the agreements tend to ensure baseline standardization with items in use by U.S. forces, provide contract administration services which may not otherwise be readily available, and help lower costs by consolidating FMS buys with DOD purchases.<sup>88</sup> The contract is subject to the same auditing procedures used in domestic arms purchases. The procedures are often beyond the scope of foreign militaries and so FMS is used to augment their capabilities while insuring they receive the goods or services agreed to in the contract.<sup>89</sup> Still, in all of this the role of the United States in an FMS contract is to insure that the contract is fully implemented by the contractor, not to become involved in the sales pitch that occurs before the contract is signed. The importance of this distinction will come clear in Chapter Four.

### **The Direct Commercial Sales Program**

The second method used by foreign governments to acquire U.S. defense goods under the security assistance program is the DCS method. This method involves a U.S. defense contractor selling directly to a foreign buyer and is regulated by the U.S. International Traffic in Arms Regulation (ITAR). The ITAR provides licensing and regulatory guidance for the import and export of all defense articles and technology.<sup>90</sup> A DCS also requires the approval of the Office of Defense Trade Control, an agency of the Department of State, which coordinates requests for permission to export defense goods and issues an export license prior to actual exportation of any defense article.<sup>91</sup> Unlike an FMS arrangement, the U.S. government only passively monitors a direct sale. Although

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<sup>87</sup>Defense Institute of Security Assistance Management, 644-646.

<sup>88</sup>Woodward, 9.

<sup>89</sup>Defense Institute of Security Assistance Management, 258.

<sup>90</sup>Defense Institute of Security Assistance Management, 656.

<sup>91</sup>Defense Institute of Security Assistance Management, 49.

the same cultural interaction occurs in a direct sale between a U.S. contractor and the buying nation as discussed in the FMS section above, the U.S. government does not play an official role in the contract's terms, costs, or provisions.<sup>92</sup> This distinction is especially important when considering TPED in UAV DCS contracts. The contractor is not acting as a representative of the United States government when making a DCS sale, and so has no right to promise interoperability with the TPED systems currently in use by the United States. The most a contractor can promise in a DCS contract is that the collection vehicle is interoperable with American systems. This distinction will be highlighted further in Chapter Four.

Under the security assistance program a DCS is licensed under the AECA and represents a sale made by a U.S. industry directly to a foreign buyer.<sup>93</sup> Unlike procedures employed for FMS, the commercial sale transaction is not administered by DOD and does not involve a government-to-government agreement. A foreign government may choose a DCS over an FMS-administered program because DCS purchases allow the purchaser more direct interface during contract negotiation, may use fixed prices, and may have a better capability to tailor the items to a particular need.<sup>94</sup> Also, the foreign government can normally negotiate a better offset agreement under DCS than it can under the U.S. government-controlled FMS program.<sup>95</sup> Contractors often provide increased commercial or industrial benefits to foreign governments that purchase military goods through DCS. These offsets may include subcontracting with the purchasing country's industries for component parts, providing the country's businesses with financial or marketing assistance, or undertaking a broad array of other activities that increase the foreign country's business base. The U.S. government is not a party to DCS offset agreements and assumes no liability under the agreements.<sup>96</sup>

## **Conclusion**

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<sup>92</sup>Robert L. Moses, *Trade Offsets in Foreign Military Sales – The F/A-18 Program* (Monterey, CA: Naval Postgraduate School, 1987), 23-24.

<sup>93</sup>Defense Institute of Security Assistance Management, 49.

<sup>94</sup>Defense Institute of Security Assistance Management, 712.

<sup>95</sup>Defense Institute of Security Assistance Management, 712-713.

<sup>96</sup>GAO, *Department of Defense Savings*, 3.

This chapter examined the United States' security assistance program, beginning with an assessment of the current security assistance program's role in the current global war on terror. This review highlighted the conceptual inputs of technology transfer to identify why the United States transfers military technology to its allies and coalition partners before turning to a history of security assistance in the United States. The history of security assistance in the United States demonstrated how the program has evolved to meet the nation's requirements over time. The global war on terror requires such a modification to maximize the effectiveness of the security assistance support provided to coalition allies. This chapter concluded with an examination of the two primary security assistance programs currently in use by the United States to emphasize their similarities and differences in strengthening the coalition in the global war on terrorism.

The United States has used and continues to use its security assistance programs to provide allied and coalition partners military systems to improve their capability to defend themselves and to act as interoperable partners with the United States. The United States provides this equipment for reasons of self-interest and particularly, in the case of the global war on terror, to gain increased capabilities through coalition action. The current security assistance programs used by the United States have become too rigid and formalized to efficiently and effectively meet the needs of current and future United States-led coalitions against terrorism. The critical limitations in the current security assistance programs is their inability to account for the requirements of the global war on terror or to recognize that modern technology, such as UAVs, may require a different kind of support than their manned predecessors.



## Chapter 2

### Case Studies

America's security assistance program has been referred to as its front line in the war on terror.<sup>97</sup> The United States has made great strides in improving the nation's capabilities to fight and win this war using security assistance programs. One of the initiatives taken in the name of greater coalition unity is the sale of America's best military technology to coalition partners to enable their continued military support. Under this aegis America's most capable manned and unmanned aircraft have been included in security assistance programs to alliance and new coalition partners. This chapter examines two security assistance case studies to highlight the similarities and differences of how the United States handles manned and unmanned aircraft security assistance programs. The Dutch F-16 Mid-Life Update (MLU) highlights the goals, technology, and current status of a manned aircraft security assistance program while the Italian Predator unmanned aerial vehicle (UAV) demonstrates the limitations of current unmanned sales.

To date technology transfers through security assistance have been treated as 'normal' sales programs as they concentrate on training coalition partners on operations and maintenance of their new assets. The following case studies suggest the United States is doing an exemplary job of equipping and training some of its coalition partners to use the cutting edge capabilities provided through the security assistance program. These security assistance programs have paid tremendous dividends in Afghanistan, as in the case of the Dutch F-16 MLU and in Iraq, in the case of the Italian Predators. The United States has also reaped economic benefits from the security assistance programs in

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<sup>97</sup>Jim Lobe, "Budget Priorities Reminiscent of Cold War," *Common Dreams Newscenter* (4 February 2004), online article, URL: <<http://www.commondreams.org/headlines04/0204-04.htm>>, accessed 16 March 2005.

the case studies. The common equipment found in both the MLU and U.S. Air Force (USAF) F-16 upgrade saved both nations millions of dollars. Similarly, the Italian Predator sale helped to lower the per airframe cost for future USAF Predator purchases.<sup>98</sup> The case of the Italian Predator security assistance program does highlight, however, that there are limitations or impediments to the United States aid that adversely affect the support the United States provides its coalition partners.

The current operations section of the Italian Predator case study suggests that this security assistance program is failing to meet the current and emerging requirements of the war on terrorism. For example, the Italian security assistance program has denied the coalition fighting the global war on terror the meaningful operational payoff of Predator systems. The unique capabilities of Predator platforms are not found in the ‘front-end,’ with the pilots and maintainers, but rather in the ‘back-end’ where the tasking, processing, exploitation, and dissemination (TPED) of the collected intelligence information occurs. If the U.S. does not train its coalition allies on TPED sources and methods, or provide access to our intelligence databases to the new UAV users, the U.S. cannot take full advantage of our allies’ new intelligence collection platforms. If the U.S. provides TPED and database access, however, it risks compromising or losing its present total control over the very intelligence and unique collection capabilities that have enabled the success achieved to date in the global war on terrorism.

### **Case Study 1: Dutch F-16 MLU Program**

The F-16, and its associated Link 11/16 data sharing system, is arguably one of the most successful USAF security assistance programs of the Cold War. Under this program F-16s entered service in the Dutch Air Force (KLu) in 1979.<sup>99</sup> The Netherlands was part of the North Atlantic Treaty Organization’s (NATO’s) initial European F-16

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<sup>98</sup>William Cahill, Major, Chief, International C4ISR Programs, Deputy Undersecretary of the Air Force, International Affairs, interview by author, 10 December 2004.

<sup>99</sup>Patricia J. Paramalee, “NATO F-16s Test Link 16 Data Link System,” *Aviation Week and Space Technology*, 29 September 2003, accessed through LexisNexis, 7 February 2005, URL: < [http://web.lexis-nexis.com/universe/document?\\_m=655e925e6092fae9ef126a23f5670bb5&\\_docnum=88&wchp=dGLbVzb-zSkVA&\\_md5=d0b98afae45943fe000a014197128b65](http://web.lexis-nexis.com/universe/document?_m=655e925e6092fae9ef126a23f5670bb5&_docnum=88&wchp=dGLbVzb-zSkVA&_md5=d0b98afae45943fe000a014197128b65)>.

purchase along with Belgium, Denmark, and Norway.<sup>100</sup> The initial KLu order included 80 single-seat F-16A's, and 22 two-seat F-16B's, which were assembled in the Netherlands as part of the original offset agreement.<sup>101</sup> The assembly facility opened in April of 1978 and the first Dutch built F-16 took off on its maiden flight on 3 May 1979 and the initial delivery of operational F-16A/Bs to the KLu occurred in June 1979.<sup>102</sup>

The Dutch planned to purchase a successor fighter aircraft in 1999 because their original F-16A/B fighters were considered obsolete and no longer interoperable with other front-line NATO fighters by the mid-1990s. As 1999 approached, however, it became apparent that, for political and economic reasons, the Dutch F-16 would not be phased-out until 2010 when the American Joint Strike Fighter becomes available.<sup>103</sup> With the decision to delay a new purchase, the KLu realized a need to increase the capabilities of their current F-16 fleet to meet NATO requirements and responsibilities. In partnership with Lockheed Martin, the current developer of the F-16, the KLu began to explore a program to maintain the same level of operational capabilities and effectiveness of their existing F-16 fleet and an extensive modernization program was developed which later became known as the MLU.<sup>104</sup> By the end of 2002 all of the KLu's operational F-16A/B's had completed the MLU. As part of the security assistance contract, the primary modification facility for the MLU program was established at the Multinational Operational Test and Evaluation center on Leeuwarden Air Base in the Netherlands in 1997.<sup>105</sup>

### **Goals of the Dutch F-16 MLU Program**

Lockheed Martin, as the primary contractor for the F-16 MLU program, had many goals when it began negotiating with the KLu. Besides the obvious profit motive for the

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<sup>100</sup>“The Netherlands: Koninklijke Luchtmacht Royal Netherlands Air Force,” *F-16.net*, URL: <<http://www.f-16.net/index.php?module:=pagesetter&func:=printpub&tid=3&pid:=8>>, accessed on 23 January 2005.

<sup>101</sup>“The Netherlands: Koninklijke Luchtmacht Royal Netherlands Air Force.”

<sup>102</sup>“The Netherlands: Koninklijke Luchtmacht Royal Netherlands Air Force.”

<sup>103</sup>“World Air Forces 2004,” *Flight International*, 16 November 2004, accessed through LexisNexis, 7 February 2005, URL: <[http://web.lexis-nexis.com/universe/document?\\_m=3b4148289946d2d759d4829890fa25de&\\_docnum=55&wchp=dGLbVzb-zSkVA&\\_md5=3a1ae4d539a15aac4f553163915c91c5](http://web.lexis-nexis.com/universe/document?_m=3b4148289946d2d759d4829890fa25de&_docnum=55&wchp=dGLbVzb-zSkVA&_md5=3a1ae4d539a15aac4f553163915c91c5)>.

<sup>104</sup>Lieven Dewitte and Stefaan Vanhastel, “F-16 MLU,” *F-16.net* (21 September 2004), URL: <[http://www.f-16.net/f-16\\_versions\\_article2.html](http://www.f-16.net/f-16_versions_article2.html)>, accessed on 23 January 2005.

<sup>105</sup>“The Netherlands: Koninklijke Luchtmacht Royal Netherlands Air Force.”

MLU sale to the KLu program itself, Lockheed Martin also had its eye on future USAF F-16 upgrade sales. The USAF plans to spend at least \$1 billion over the next few years on improvements designed to bring nearly 700 F-16C/D Block 40 and Block 50 fighters to an upgraded common baseline.<sup>106</sup> The key component of the USAF upgrade is the modular mission computer (MMC) which Lockheed Martin developed for the European F-16 MLU.<sup>107</sup> The upgraded MMC replaces three older systems in the F-16 and has twelve times more memory capability which allows the system to work 47 times faster than its predecessor.<sup>108</sup> By using a common MMC in both the USAF upgrade and Dutch MLU programs, Lockheed Martin was able to decrease dramatically its research and development costs, which in turn lowered the bottom-line cost of the upgrades for both buyers.

Lockheed Martin executives also recognized that the MLU program would make the F-16 a much more competitive fighter on the world market.<sup>109</sup> The USAF maintains hundreds of F-16A/B airframes at Davis-Monthan Air Force Base in a mothballed status.<sup>110</sup> If Lockheed Martin's MLU program successfully showed how these older generation platforms could be reborn as cutting-edge fighters, they believed a worldwide market of up to 500 upgraded F-16 platforms could exist.<sup>111</sup> So far, Lockheed Martin's initial hopes of foreign sales have been proven optimistic, but recent contracts with Peru, Chile, Poland, the UAE, and other countries have demonstrated the viability of the initial concept.<sup>112</sup>

Lockheed Martin executives also realized that by keeping the F-16 flying in the KLu they would continue to profit from weapons and fire control sales. As an example, Lockheed Martin delivered its 1600th Low Altitude Navigation and Targeting Infrared

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<sup>106</sup>Karl Schwartz, "Lockheed Martin F-16 Fights On," *Flug Review* (December 1998), URL: <<http://www.flug-revue.rotor.com/FRheft/FRH9812/FR9812a.htm>>, accessed 23 January 2005.

<sup>107</sup>Schwartz, "Lockheed Martin F-16 Fights On."

<sup>108</sup>Schwartz, "Lockheed Martin F-16 Fights On."

<sup>109</sup>Erik Floden, "Arms Trade News," *Arms Trade Oversight Project* (July 2001), URL: <<http://www.clw.org/cat/atn0701.html>>, accessed on 23 January 2005.

<sup>110</sup>Gary Duffy, "'Boneyard' May Keep D-M Alive," *Tucson Citizen* (10 May 2004), URL: <[http://www.tucsoncitizen.com/index.php?page=east\\_tucson&story\\_id=est1\\_amarc](http://www.tucsoncitizen.com/index.php?page=east_tucson&story_id=est1_amarc)>, accessed 23 January 2005.

<sup>111</sup>Neil Baumgardner, "Lockheed Martin sees potential for up to 400 F-16s during transition to JSF," *Defense Daily*, 27 June 2003, accessed through LexisNexis on 7 February 2005, URL: <[http://web.lexis-nexis.com/universe/document?\\_m=5d636631b02cccfff36f6e8f0475c0&\\_docnum=2&wchp=dGLbVzb-zSkVA&\\_md5=de62d1cba0762a0560a561ffc481cb22](http://web.lexis-nexis.com/universe/document?_m=5d636631b02cccfff36f6e8f0475c0&_docnum=2&wchp=dGLbVzb-zSkVA&_md5=de62d1cba0762a0560a561ffc481cb22)>.

<sup>112</sup>Floden, "Arms Trade News."

for Night (LANTIRN) system to the KLu for use on its F-16 MLU fighters in 1999.<sup>113</sup> If the KLu had decided to scrap its F-16 fleet instead of upgrading them, Lockheed Martin would have lost a significant amount of potential business that the MLU program has enabled. These upgrade sales have proven very profitable for Lockheed Martin.<sup>114</sup>

The MLU program also met the initial goals of the KLu. The F-16 MLU program resulted in both increased operational capabilities and an increased life expectancy for their F-16 fighters.<sup>115</sup> The MLU's costs are drastically lower than the price of a new fighter aircraft. After the KLu's F-16 MLU program, its fighters are again interoperable with the world's most advanced fighter jets. From the KLu's perspective, the increase in both technical and economical life expectancy have fully justified the cost of the MLU program.<sup>116</sup>

The F-16 MLU program has met all of the major United States security assistance goals. The F-16 MLU program allows the U.S. to maintain the Dutch as a strong ally who shares common military equipment, doctrine, and capabilities. The F-16 MLU program also allows the United States to maintain its access to and influence among NATO and the European countries.<sup>117</sup> Moreover, the MLU program allows the United States to reduce its number of fighters stationed in Europe as the Dutch are capable of protecting themselves and other NATO nations without requiring the deployment of U.S. aircraft that are needed elsewhere.<sup>118</sup> The MLU program has also fostered relations with our Dutch allies and reduced the price of U.S. acquisition by spreading the cost over multiple buyers.<sup>119</sup> Furthermore, the MLU has increased the interdependence of the United States and its European allies due to the partnerships between companies producing the hardware and software that comprise MLU program. Direct technological

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<sup>113</sup>Nettie Johnson, "Lockheed Martin Delivers 1600<sup>th</sup> LANTIRN Targeting Pod," *Lockheed Martin Missiles and Fire Control* (15 December 1999), URL: <[http://www.missilesandfirecontrol.com/our\\_news/pressreleases/99pressrelease/121599\\_LANTIRN.htm](http://www.missilesandfirecontrol.com/our_news/pressreleases/99pressrelease/121599_LANTIRN.htm)>, accessed 23 January 2005.

<sup>114</sup>Johnson, "Lockheed Martin Delivers 1600<sup>th</sup> LANTIRN Targeting Pod."

<sup>115</sup>Eric Hehs, "MidLife Update F-16s Reach Maturity," *Code One Magazine Online* (January 1998), URL: <[http://www.codeonemagazine.com/archives/1998/articles/jan\\_98/jan\\_98\\_p.html](http://www.codeonemagazine.com/archives/1998/articles/jan_98/jan_98_p.html)>, accessed 23 January 2005.

<sup>116</sup>Dewitte, "F-16 MLU."

<sup>117</sup>Michael N. Beard, *United States Foreign Military Sales Strategy: Coalition Building or Protecting the Defense Industrial Base* (Maxwell AFB, AL: Air War College, March 1995), 12.

<sup>118</sup>Beard, 16.

<sup>119</sup>Joint Chiefs of Staff, Joint Publication 3-16, *Joint Doctrine for Multinational Operations* (Washington, D.C.: Government Printing Office, 5 April 2000), I-7. Cited hereafter as Joint Pub 3-16.

support is supplied by companies in the United States and five allied countries: Belgium, Denmark, the Netherlands, the United Kingdom, and Japan.<sup>120</sup>

The MLU program represents a shift in post-Cold War era in security assistance programs toward an emphasis on multi-national teaming in the development of new capabilities for existing weapons systems. The effect of competition for new weapons systems, such as fighter aircraft, has been to increase the amount of multi-national cooperation. Rising platform costs, combined with the shrinking number of industrial contractors during a period of decreased government spending on defense worldwide, has increased the importance of each new weapons system purchase to the domestic economies of potential coalition partners. The governments of these coalition partners are pushed to make purchases from domestic producers of weapons systems, or at least to gain major offset agreements when purchasing foreign systems, as they are under intense domestic pressure to spend their money within the domestic economy. This change in the global environment may portend a shift in security assistance by the United States to ‘smaller’ security assistance programs, such as UAVs, in the future. The United States cannot afford to equip its coalition partners in the global war on terrorism with F/A-22 fighter aircraft through security assistance sales or credit purchases, but it may be able to provide lower cost Predator systems in order to secure the historic benefits of security assistance.

### **Technology Included in the F-16 MLU Program**

Although Lockheed Martin and the KLu decided to call the F-16 upgrade program the MLU, it is really a Mid-Life Transformation for the old F-16A/B fighters. The MLU package turns A and B model F-16s into the equivalent of the latest USAF Block 50/52 fighters. Over 300 F-16s are currently in some stage of the MLU process at four different locations in Europe.<sup>121</sup> The MLU process is collectively referred to as a ‘kit’ for each aircraft.<sup>122</sup> These kits include almost 13,000 parts manufactured in over twenty-two

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<sup>120</sup>Hehs, “MidLife Update F-16s Reach Maturity.”

<sup>121</sup>Ginger Jabour, “F-16 Technology links allied nation’s aircraft,” *US Fed News* (27 May 2004), accessed through LexisNexis on 7 February 2005, URL: < [http://web.lexis-nexis.com/universe/document?\\_m=ec3f5ece07658a3a9f76f020fa780a34&\\_docnum=4&wchp=dGLbVzb-zSkVA&\\_md5=0d1814e2a613ce319bb963b93d572711](http://web.lexis-nexis.com/universe/document?_m=ec3f5ece07658a3a9f76f020fa780a34&_docnum=4&wchp=dGLbVzb-zSkVA&_md5=0d1814e2a613ce319bb963b93d572711)>.

<sup>122</sup>Hehs, “MidLife Update F-16s Reach Maturity.”

locations around the world. The MLU is a major refurbishment where over 750 system installation and structure drawings, 900 harness drawings, and 250 harness assembly drawings support the upgrade. Over 100 specialized tools were designed and built to install the new equipment. Each individual upgrade takes, on average, almost 2,500 work-hours per aircraft.<sup>123</sup>

The transformation is well worth the effort for the nations that receive F-16 MLU fighters at the end of the process. The MMC, color multi-function displays, advanced identification friend or foe interrogator, improved data modem, digital terrain system, electronic warfare management system, and a host of other hardware associated with MLU extends the operational effectiveness of older F-16A/B fighters for at least fifteen years.<sup>124</sup> The upgraded capabilities are made possible by the MMC, the most critical single piece of the MLU process. The MMC replaces “three other computers, takes up only half the space of the hardware it replaces, weighs fifty percent less, has faster processing with large growth capacity, and uses forty percent less power.”<sup>125</sup> Although the USAF dropped out of the MLU production phase, it planned to incorporate the new MMC into over 200 of its Block 50/52 and 450 Block-40 aircraft from the beginning of the MLU process and, after funding was approved, also utilized a color multi-function display set in the upgrade of its F-16s.<sup>126</sup> Since the same MMC will be used in USAF Block 50 aircraft and the upgraded European MLU F-16s, hardware is interoperable for both types.<sup>127</sup>

### **Current Status/Results of the F-16 MLU Program**

The MLU program proved its operational worth to the Netherlands and the United States in March 1999 when the Dutch deployed the upgraded airframes to Amendola, Italy in support of NATO operations over Yugoslavia during Operation Allied Force

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<sup>123</sup>Hehs, “MidLife Update F-16s Reach Maturity.”

<sup>124</sup>Magnus Bennett, “F-16s offer long service life,” *Aerospace Daily and Defense Report* (13 November 2003), accessed through LexisNexis on 7 February 2005, URL: < [http://web.lexis-nexis.com/universe/document?\\_m=e64eb315eb7c48326215ad0247436607&\\_docnum=54&wchp=dGLbVzb-zSkVA&\\_md5=1e11a7228d6efba1d74cb86520814e9f](http://web.lexis-nexis.com/universe/document?_m=e64eb315eb7c48326215ad0247436607&_docnum=54&wchp=dGLbVzb-zSkVA&_md5=1e11a7228d6efba1d74cb86520814e9f)>.

<sup>125</sup>Hehs, “MidLife Update F-16s Reach Maturity.”

<sup>126</sup>“Modernization of the F-16 Fleet,” *International Online Defense Magazine* (17 December 2004), URL: <<http://defense-update.com/features/du-1-04/f-16-upgrades.htm>>, accessed 23 January 2005.

<sup>127</sup>“Modernization of the F-16 Fleet.”

(OAF).<sup>128</sup> The Dutch aircraft were initially only employed during daylight hours, but as coalition commanders gained confidence in the MLU and its crews they were employed during night and adverse weather conditions. A Dutch MLU F-16 scored the first air-to-air kill during OAF in early March when it downed a Yugoslavian MiG-29 with an AIM-120 Advanced Medium-Range Air to Air Missile (AMRAAM). The pre-MLU F-16 was not able to employ the AMRAAM so the shoot-down would not have happened without the MLU upgrade.

In 2002 the Dutch government decided to send F-16s to Afghanistan in support of Operation Enduring Freedom, (OEF) and these planes joined a multi-national air group at Manas Airbase in Kyrgyzstan.<sup>129</sup> The Dutch deployment formed a major part of the international stabilization force that helped secure Afghanistan during its nationwide elections in 2003.<sup>130</sup> Since their initial 2002 deployment, the Dutch MLU F-16s have operated from the same base into 2003 and 2004.<sup>131</sup> The KLu's MLU F-16s are highly interoperable with the U.S. forces which comprise the majority of the forces in the region. The MLU allows the Dutch fighters to employ quickly with their American coalition partners on equal terms. For example, in late August 2003, approximately 40 Taliban and al-Qaeda troops were killed when forward-air controllers called for support from the Dutch MLU F-16s.<sup>132</sup>

The success of the MLU security assistance program has led the United States and the Netherlands to begin a pilot exchange program to provide U.S. and Dutch pilots a chance to train together using the tactics they plan to use in combat, and then actually fly combat missions together.<sup>133</sup> The two-to-three-year-long pilot exchange program has a Dutch pilot who flies as part of an American F-16 squadron in the United States while an

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<sup>128</sup>Eric Stijger, "Operation Allied Force," *Code One Magazine* (July 1999), URL: <[http://www.codeonemagazine.com/archives/1999/articles/jul\\_99/jul2a\\_99.html](http://www.codeonemagazine.com/archives/1999/articles/jul_99/jul2a_99.html)>, accessed on 7 February 2005.

<sup>129</sup>"The Netherlands: Koninklijke Luchtmacht Royal Netherlands Air Force."

<sup>130</sup>"Dutch Deploy F-16s to Kyrgyzstan," *F-16.net* (11 September 2004), URL: <<http://www.f-16.net/modules.php?op=modload&name=News&file=article&sid=1189>>, accessed on 23 January 2005.

<sup>131</sup>"Dutch to Send Six F-16s to Afghanistan for Elections," *F-16.net* (22 August 2004), URL: <<http://www.f-16.net/modules.php?op=modload&name=News&file=article&sid=1154>>, accessed on 23 January 2005.

<sup>132</sup>Allen Herritage, "U.S., Dutch Pilots Train Together," *Air Force Print News* (16 September 2003), URL: <[http://www.af.mil/news/story\\_print.asp?storyID=123005621](http://www.af.mil/news/story_print.asp?storyID=123005621)>, accessed on 23 January 2005.

<sup>133</sup>Herritage, "U.S., Dutch Pilots Train Together."

American pilot flies with the KLu in the Netherlands.<sup>134</sup> The end result will be a more cohesive coalition, familiar with each other's tactics and procedures, according to a past participant in the program, Major Beau Rogers.<sup>135</sup> Major Rogers flew sorties with the Dutch MLU contingent during May 2003 as part of the regular Dutch pilot rotation in the OEF area of responsibility.

As the OAF and OEF cases highlight, the interoperability of the Dutch and U.S. F-16s has allowed the two nations to tie their tactics, training, and doctrine together during real world operations. Such interoperability was a goal of Cold War manned aircraft security assistance programs. Security assistance transfers took place in a well-established alliance with common operational ties, training curriculums, and even pilot exchange programs. Under an alliance structure and in the face of a well-defined threat, the United States could rely on its allies to incorporate their new military equipment in an interoperable environment. As the next case study demonstrates, Cold War alliance conditions based upon long-term relationships that could build upon past shared experiences are not necessarily congruent with security assistance transfers of intelligence collection platforms to possible short-term coalition partners.

### **Case Study 2: Italian Predator UAV Program**

The Italian Predator program is also a success of the security assistance program. The Predator program allows the U.S. to maintain its traditionally strong military ties with the Italians and to nurture a sphere of influence within Europe. The two nations now share common military equipment, doctrine, and capabilities in relation to their UAV programs. The Italian Predator program has also allowed the United States to maintain its access and influence within NATO's intelligence collection architecture. The Predator program has promoted positive relations with our Italian coalition partners in the war on terror and reduced the price of U.S. weapons by spreading the cost over multiple buyers.

Before discussing the details of the security assistance sale of the Predator to the Italian Air Force (ITAF), some background about the system is necessary. The RQ-1

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<sup>134</sup>Heritage, "U.S., Dutch Pilots Train Together."

<sup>135</sup>Heritage, "U.S., Dutch Pilots Train Together."

Predator is a medium-altitude, long-endurance UAV system. The RQ-1 is used primarily as a Joint Forces Air Component Commander (JFACC) theater-level asset for reconnaissance, surveillance and target acquisition in support of the Joint Force Commander (JFC). Contrary to popular belief, the RQ-1 Predator is not an airborne platform but rather a system.<sup>136</sup> A fully operational Predator system, for example, consists of four aircraft, a ground control station (GCS), a Predator Primary Satellite Link (PPSL), and approximately 82 personnel for continuous 24-hour operations.<sup>137</sup>

The basic crew for a single Predator mission is one pilot and two sensor operators. They fly the aircraft from inside the GCS via a line-of-sight (LOS) data link. For extended range missions a satellite data link allows the GCS to control the air vehicle. The aircraft is equipped with a color nose camera that is generally used by the aerial vehicle operator for flight control, a day variable aperture electro-optical (EO) television camera, a variable aperture infrared (IR) camera for low light and night operations, and a synthetic aperture radar (SAR) for looking through smoke, clouds or haze. The EO and IR cameras produce full motion video while the SAR produces still frame radar images.<sup>138</sup>

Each Predator aircraft can be disassembled in the field to enable quick mobility to deployed locations. The airframe breaks down into six main components and is loaded into a container, nicknamed ‘the coffin,’ for travel. The largest component of the Predator system is the GCS, and it is designed to be rolled into a C-130. The GCS is a 30 x 8 x 8 foot, triple-axle trailer. This trailer is not configured for quick air mobility and requires special handling to load and unload from transport aircraft. The trailer incorporates an integral uninterrupted power supply (UPS), environmental control system, pilot and payload operator (PPO) workstations, data exploitation, mission planning, communication (DEMPC) terminals, and SAR workstations. All mission imagery recording is located in the GCS since the Predator has no onboard recording

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<sup>136</sup>Captain Brian Sidari, United States Air Force MQ-1 and MQ-9 Predator Functional Manager, Headquarters United States Air Force, interview by author, 8 November 2004.

<sup>137</sup>Sidari Interview.

<sup>138</sup>Sidari Interview.

capability. Power is supplied either by commercially supplied power or by dual external generators.<sup>139</sup>

The PPO workstations are the principal means through which operators control the Predator and its sensor payload. The DEMPC workstations allow data exploitation, mission planning, mission and payload monitoring, and system management. SAR workstations control and monitor the SAR workstations control and monitor radar operations. The SAR workstations can also be used for limited near real time exploitation of the SAR data in the GCS.<sup>140</sup>

The third portion of a Predator system is the air transportable PPSL, which consists of a satellite system mounted on a trailer. The PPSL provides communications between the ground station and the aircraft when it is beyond LOS and is also the primary link into intelligence dissemination networks.<sup>141</sup> HF/UHF/VHF (voice/data), cellular/landline telephones, and hardwire connectivity with the TROJAN SPIRIT II satellite communication terminal carry external communications.<sup>142</sup>

Whether the system is entirely deployed forward, or only partially so, the RQ-1 system provides the JFC the same level of intelligence support. The capabilities of the system are completely independent of where the Predator's GCS is deployed, whether it is in theater or not. When 'deployed forward,' a GCS is shipped to the theater along with the aircraft and satellite link terminal. The deployed forward method was used during OAF, but this method is no longer the USAF's preferred way of employing the Predator system.

For operations requiring the minimum forward footprint and rapid deployment, the preferred method of employment for Predator is through connection back to continental U.S. (CONUS)-based fixed facilities. Takeoffs and landings occur at the Forward Operating Location by a forward-deployed Launch and Recovery Element (LRE) from an LRE GCS, whereas the majority of the supporting personnel remain at a CONUS-based main operating base (MOB) and perform mission execution. This deployment system was utilized during OEF and Operation Iraqi Freedom (OIF).

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<sup>139</sup>Sidari Interview.

<sup>140</sup>Sidari Interview.

<sup>141</sup>Sidari Interview.

<sup>142</sup>Sidari Interview.

Reaching back to CONUS facilities allows the supporting operations cells to utilize their secure connectivity for command and control and intelligence requirements.

Through November of calendar year 2004, the USAF's Predator UAV system had flown 2,495 sorties (77% combat) equaling 35,134 hours (88% combat) of flying time.<sup>143</sup> The Predator system has logged over 6,000 combat missions in Afghanistan and Iraq. Today, JFCs worldwide request Predator coverage at rates that the current Predator fleet cannot meet: the assessed worldwide requirement is currently greater than the Predator's current capability to fly six simultaneous orbits, even during surge operations.<sup>144</sup>

The USAF has adapted a two-tier approach to increase the amount of Predator coverage it can make available to JFCs.<sup>145</sup> First, the USAF is pursuing internal changes, including increased orbits and numbers of airframes available, to make the Predator more available to combatant commanders. In particular, the USAF has requested supplemental funding to double the number of Predator orbits, from six to twelve, by October 2005.<sup>146</sup> To meet this goal, the USAF has accelerated the production of Predator airframes to two per month. This increase, with the associated increases in ground control and communication systems, spares, and contractor maintenance and logistics support should allow the USAF to meet its goal.<sup>147</sup> To further increase its Predator capabilities the USAF is currently testing a multi-aircraft control system which, if fielded, may enable a single GCS to control four Predators.<sup>148</sup>

Second, the USAF is using the security assistance program to increase Predator coverage.<sup>149</sup> Sales of the Predator to foreign allies have the potential to increase dramatically Predator coverage for multi-national operations, releasing USAF Predators for U.S.-only missions. The USAF has supported future sales of Predator to U.S. allies and endorsed Predator over other foreign UAVs. The USAF views Predator sales as a form of information technology 'burden sharing.' As an example, the deployment of

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<sup>143</sup>Sidari Interview.

<sup>144</sup>Sidari Interview.

<sup>145</sup>Cahill Interview.

<sup>146</sup>Sidari Interview.

<sup>147</sup>Sidari Interview.

<sup>148</sup>Sidari Interview.

<sup>149</sup>Cahill Interview.

ITAF Predators to Iraq permitted in-theater application of U.S. Predators to other high priority missions.<sup>150</sup>

Currently, Predator systems, like other Low Density/High Demand (LD/HD) assets, are virtually the exclusive purview of the United States and in great demand by those on the front lines of the war on terrorism.<sup>151</sup> According to General Tommy Franks, the former Commander of Central Command, the most requested airborne system for hunting Taliban and al Qaeda terrorists in Afghanistan was Predator, and at the time the only nation flying it was the United States.<sup>152</sup> The U.S. could not rely on coalition partners to share the burden of intelligence collection. Supporting the sale of Predator to Italy was an important first step in beginning to lessen the burden on U.S. LD/HD assets. In addition, it allows NATO partners to transition their intelligence collection systems with the United States, instead of being left behind.<sup>153</sup>

The sale of the Predator system to Italy is vastly different than the sale of MLU technology to the Netherlands. The Predator system utilizes the most advanced cutting-edge unmanned technology and is dependent on network architecture in order to be effective to provide global coverage capabilities. It is not enough to know how to fly the Predator, or to understand its maintenance and logistics requirements. In order to leverage a Predator system's unique intelligence collection capabilities, the end-user must combine the operational knowledge required to fly the system with knowledge of communications, links, and nodes to push the collected data to the end user in near-real time. In traditional security assistance programs the United States could rely on an alliance partner to employ platforms in a manner consistent with alliance goals and procedures, such as NATO doctrine or standardization agreements (STANAGs). But to operate Predator in the global war on terror requires the United States to vastly increase

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<sup>150</sup>Cahill Interview.

<sup>151</sup>Low-density/High-demand assets are those that the military services do not have very many of, but are critical to the current American-style of war. The Secretary of Defense, Donald Rumsfeld, has said on a number of occasions that "he thinks the term 'high-demand, low-density' is just a euphemism for the Department of Defense not buying enough of the right things." Arthur K. Cebrowski, "Special Briefing on Force Transformation" presented at the Pentagon, Washington, D.C., 27 November 2001, online version, URL: < [http://www.au.af.mil/au/awc/awcgate/transformation/t11272001\\_t1127ceb.htm](http://www.au.af.mil/au/awc/awcgate/transformation/t11272001_t1127ceb.htm)>, accessed on 30 April 2005.

<sup>152</sup>John Diamond, "Pentagon Plumbs Lessons From War," *Chicago Tribune* (14 January 2002), online article, URL: < <http://www.globalsecurity.org/org/news/2002/020114-attack02.htm>>, accessed 16 March 2005.

<sup>153</sup>Cahill Interview.

the amount and types of training and support provided to its coalition partners, including training on and access to the network that comprises the back-end of the system. This portion of the Predator system will be discussed in the next chapter.

### **Goals of the Italian Predator Program**

General Atomics requested a direct commercial sales (DCS) license in August 2001 to sell a Predator system, including five aircraft with an option for a sixth, as well as logistics and training support to the ITAF. The Italian government requested the Predator system to fulfill NATO commitments and to improve their intelligence, surveillance, and reconnaissance (ISR) coverage of the Adriatic Sea and the central Mediterranean. The Italians did not make a request, however, for production capability or any associated technology transfer.<sup>154</sup> Due to Predator's Missile Technology Control Regime (MTCR) Category I classification, the request was held up at the State Department and the Department of Defense (DOD) until a new interpretation of the MTCR which allowed limited transfers of Category I UAVs was coordinated and approved. A UAV system designated Category I under the MTCR is capable of delivering a payload of at least 500kg to a range of at least 300km.<sup>155</sup> A new interpretation of the MTCR, allowing limited sale of Category I systems, was approved in March 2002.<sup>156</sup>

Once approved for sale, the State Department provided the General Atomics' preliminary request to Congress as required by the Security Assistance procedures. As a result of Congressional concerns over the proliferation of Category I systems, a formal notification to Congress was not sent at that time. Although the Italian government had only requested an unarmed Predator system the State Department was asked to develop an additional proviso which required that the Italian government obtain the prior consent of the United States if it ever sought to arm the Predator system.<sup>157</sup> Upon receiving Italian agreement to this stipulation, the State Department formally submitted the sale request to Congress, which approved the sale in June 2002.

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<sup>154</sup>Dyke Weatherington, "Background Paper on Predator UAV Sale to Italy," Undersecretary for Defense, Acquisition Technology and Logistics, 16 Sep 2002.

<sup>155</sup>Weatherington, "Background Paper on Predator UAV Sale to Italy."

<sup>156</sup>Weatherington, "Background Paper on Predator UAV Sale to Italy."

<sup>157</sup>Weatherington, "Background Paper on Predator UAV Sale to Italy."

The fact that Congress viewed the Predator sale using the Cold War's MTCR regime highlights how regulations and processes of security assistance have not progressed to meet the operational requirements of coalition partners for the global war on terror. The MTCR was initially developed to limit the risks of proliferation of weapons of mass destruction (WMD) including nuclear, chemical, and biological weapons by controlling transfers that could make a contribution to delivery systems, other than manned aircraft, for such weapons.<sup>158</sup> The risk of Italy using their Predator systems as a WMD delivery platform was minimal, but by enforcing an outdated MTCR, the United States was willing to risk losing the chance to provide a coalition partner a critical intelligence asset.

Italy took delivery of their Predator system, including all five air vehicles, in the spring of 2003.<sup>159</sup> After receiving their training from General Atomics, during which one of their air vehicles crashed, the Predator system deployed to Italy as the Italians organized their first Predator squadron at Amendola Air Base in southern Italy and declared the squadron operational in December 2004. General Atomics, the primary contractor for Predator UAVs, submitted a license request to sell the ITAF five Predator aircraft, training, and associated logistics as a DCS case. The package is valued at approximately \$55M and has a small offset package associated with it for maintenance and final assembly. There was no request for production capability and associated technology transfer.<sup>160</sup> The sale is an important agreement for General Atomics as it expands the customer base for the Predator system beyond the United States. The expanded customer base, in turn, generates more foreign interest in the system and is almost a guarantee of future foreign sales.

The Italian Government requested the Predator system to fulfill its NATO and national ISR force structure goals. The Predator sale provided the Italians with a cutting-edge UAV capability that helps move them toward the same transformational ISR

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<sup>158</sup>Mike Nartker, "MTCR Members Amend Missile Nonproliferation Guidelines; Include "Catch-All" Provisions," Global Security Newswire (30 September 2003), URL: <[http://www.nti.org/d\\_newswire/issues/2003/9/30/11s.html](http://www.nti.org/d_newswire/issues/2003/9/30/11s.html)>. Accessed on 7 February 2005.

<sup>159</sup>Weatherington, "Background Paper on Predator UAV Sale to Italy."

<sup>160</sup>Cahill Interview.

capabilities as the United States.<sup>161</sup> The Italians also view the Predator system as a strategic asset in their continuing efforts against drug trafficking, smuggling, illegal immigration, offshore polluters, and commercial fishing violators.<sup>162</sup> The Predator system represents an exponential improvement to its fielded military ISR structure and their first full-motion video capable platform.

### **Technology and Training Included in the Italian Predator Program**

There is no external difference between the Predator systems the United States uses and the Predator system sold to the ITAF. The aircraft, GCS, and PPSL are identical in every respect, except that the Italian Predators are unarmed. There are, however, some crucial software differences. The most critical of these differences, which will be discussed below, is that the ITAF chose to have its Predator system broadcast in a different video format than the U.S. systems. The ITAF utilizes a phase alteration line (PAL) video format while the American system broadcasts in the national television standards committee (NTSC) format which are incompatible.<sup>163</sup>

The ITAF sent twelve Predator aircrew and 24 maintainers through training with General Atomics in California, which they completed by late summer of 2003. This initial cadre was intended to train the next generation of ITAF Predator personnel. The training provided by General Atomics included the baseline requirements for USAF Predator personnel and every facet of flying and employing the Predator.<sup>164</sup>

### **Current Status/Results of the Italian Predator Program**

The ITAF Predator personnel finished their training with General Atomics in September of 2004 and began their deployment to their home field at Amendola Air Base in Italy. They were not destined to stay ‘home’ for very long. Italy has over 3,000 military personnel deployed to Iraq working under the overall command of the United

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<sup>161</sup>Cahill Interview.

<sup>162</sup>Cahill Interview.

<sup>163</sup>Sidari Interview.

<sup>164</sup>Captain Brian Sidari, USAF, United States Air Force MQ-1 and MQ-9 Predator Functional Manager, Headquarters United States Air Force, e-mail to author, subject: “Did this happen?,” 25 January 2005.

Kingdom's personnel in the Nassiriyah area. The ITAF decided to deploy their new Predator system immediately to assist with force protection of its deployed troops.<sup>165</sup>

The ITAF flew their first operational Predator mission in Iraq on 21 January 2005.<sup>166</sup> The progress of the ITAF personnel speaks volumes about their individual quality as well as that of the training they received from General Atomics and the USAF. The ITAF Predator system deployed to support real-world operations within weeks of becoming operational. The Italian Predator system's presence in Nassiriyah allows the USAF to reallocate its Predator assets. Since the ITAF shouldered the Predator support mission around Nassiriyah, the USAF could reallocate those assets to provide support to other critical areas in Iraq.<sup>167</sup>

Limitations of the security assistance transfer hinders deployment of the Italian Predators to Iraq. The Italians are able to fly and support Predator operations, but because the back-end support was not included in the security assistance program, they are unable to interface with the rest of the coalition forces. The United States did not include equipment or access to its TPED architecture in the security assistance transfer. As a result, the Italians modified the Predator to meet their individual requirements, which caused significant interoperability problems once they arrived in Iraq.

The most significant shortfall has been the difference in video format, which appears on the surface to be a minor issue. But this matter has significant operational implications on how coalition partners share information. The Italian forces are the only troops that are able to receive the Italian Predator's PAL feed because everyone else is set up to receive the NTSC video format and are thus the only nation that can process, exploit, or disseminate the collected information. Whenever the Italian Predator operator identifies a significant target, the only way that information on it can be passed to the JFC is via voice line, an inefficient and insecure method of passing time critical information. In addition, if the Italian Predator is in the area when other coalition ground forces need intelligence support, those UAVs are unable to meet this requirement in a timely fashion.

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<sup>165</sup>Tom Kington, "Italy to Send its New Predator UAVs to Iraq," *DefenseNews.com* (11 January 2005), URL: <<http://www.defensenews.com/story.php?F=593973&C=europe>>, accessed 23 January 2005.

<sup>166</sup>Tom Kington, "Italian Predators patrol Iraq," *C4ISR Journal* Volume 4, Number 3 (April 2005), 42.

<sup>167</sup>Captain Brian Sidari, USAF, United States Air Force MQ-1 and MQ-9 Predator Functional Manager, Headquarters United States Air Force, e-mail to author, subject: "Current Status of the Italian Preds," 24 January 2005.

The difference in video formats also means that Americans are unable to provide intelligence support quickly or efficiently to Italian troops.<sup>168</sup>

The incompatibility of Predator video is indicative of the issues that require consideration when providing security assistance to coalition partners in the global war on terror. On the surface, the Italian Predator security assistance program achieved the historical desired effects of security assistance. To ensure that information on fleeting targets gathered by Predator, such as terrorist cells, is gathered and disseminated seamlessly to those who need it, the security assistance program must accommodate non-traditional intelligence support aspects, such as TPED, to guarantee coalition partner's interoperability with U.S. forces. The pivotal role played by TPED is outlined in the next chapter.

### **Case Study Similarities and Differences**

These case studies suggest the United States should include training on and equipment for access to TPED to coalition partners who purchase UAVs through the security assistance program. Currently the United States sells UAVs using the same procedures it used throughout the Cold War when selling manned platforms, but if the coalition in the global war on terror is to leverage the intelligence collection capabilities of UAVs, the TPED will need to be included in future security assistance programs. This path does entail costs, however, and the United States must weigh the potential benefits when deciding whether or not to include TPED as part of security assistance programs. The next chapter explores both the costs and the benefits of including TPED in future UAV security assistance programs.

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<sup>168</sup>Sidari, e-mail, 24 January 2005.



## Chapter 3

### **Intelligence Tasking, Processing, Exploitation, and Dissemination**

The previous chapter surveyed how current security assistance for manned and unmanned platforms are meeting the requirements and goals of the program. The two case studies demonstrated how security assistance legislation, written for manned platforms, falls short of providing our coalition partners the necessary tools to utilize their unmanned intelligence collection assets to their maximum potential. To enable this improvement, security assistance programs need to account for the inherent abilities and requirements of unmanned intelligence collection platforms, such as the ‘back-end’ processes like tasking, processing, exploitation, and dissemination (TPED).

This chapter examines the current intelligence structure supporting the global war on terror and also provides an overview of the current TPED process used in the United States. TPED is explored and critiqued with an eye toward developing the requirements coalition allies need if they are to take part in the intelligence process as equal partners. These requirements do not currently exist. In the current environment of U.S. military and intelligence transformation, the reliance on coalition operations for victory in the global war against terror demands the rapid conversion of collected intelligence data into processed information and the conversion of processed information into actionable intelligence accessible by all.<sup>169</sup> The process used to accomplish this goal is TPED. Coalition intelligence interoperability at the data level, through the use of common database standards, will further the integration of information from all coalition partners, horizontally and vertically, at all levels of classification. The net result will be a more

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<sup>169</sup>U.S. Congress, Senate, Armed Services Committee, *Statement of Dr. Stephen A. Cambone*, Undersecretary of Defense for Intelligence, 109<sup>th</sup> Congress, 1<sup>st</sup> session, 7 April 2004, 11. Cited hereafter as U.S. Congress, SASC, *Dr. Cambone Statement*, 4.

efficient use of the coalition's limited collection assets and a more effective and synergistic use of our intelligence analysts.<sup>170</sup>

### **Intelligence and the Global War on Terrorism**

The National Strategy for Combating Terrorism (NSCT) emphasizes the intelligence community (IC) must continue its aggressive efforts to identify terrorists, their organizations, and their support infrastructure if the United States is to triumph over terrorism.<sup>171</sup> The IC in the United States comprises the intelligence agencies and offices whose work is often related and sometimes combined, but who work for different clients and under various lines of authority and control.<sup>172</sup> In the United States the IC grew out of a set of evolving demands and without a master plan, largely due to the fact that the services vary by client needs and are compartmentalized to limit access and potential damage should leaks occur. The NSCT also notes that the IC should not rely solely on scientific and technical intelligence but should increase its effort to use other intelligence disciplines and rely more on coalition partners for assistance, especially in human intelligence and linguistic support.<sup>173</sup> In addition, the strategy document stresses the importance of “domain awareness” in the fight against terrorism. Domain awareness is defined in the NSCT “as the extensive knowledge of events, trends, and activities that is achieved through the integration and synthesis of all information, data, and intelligence across all government agencies.”<sup>174</sup> The NSCT emphasizes that the underlying element for the effectiveness of these measures remains a strong intelligence program. Some authors go so far as to identify the underlying intelligence structure as the “indispensable

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<sup>170</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 4-5.

<sup>171</sup>The White House, *National Strategy for Combating Terrorism* (Washington, D.C.: White House Printing Office, February 2003), 8. Cited hereafter as The White House, *National Strategy for Combating Terrorism*.

<sup>172</sup>Mark M. Lowenthal, *Intelligence, From Secrets to Policy* (Washington, D.C.: Congressional Quarterly Press, 2003), 10. For a detailed discussion on the difficulties that the stove-piped intelligence community in the United States causes please refer to The Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Destruction, *Report to the President of the United States* (31 March 2005), online edition, URL: < <http://www.gpoaccess.gov/wmd/>>, accessed on 11 April 2005. Part two of the report, titled “Looking Forward,” details the problems inherent in the current intelligence community structure as regards leadership, management, collection, analysis, and information sharing with a focus on the weapons of mass destruction target set.

<sup>173</sup>The White House, *National Strategy for Combating Terrorism*, 16.

<sup>174</sup>The White House, *National Strategy for Combating Terrorism*, 25.

element of the campaign [against terrorism] on which the success of all others will depend.”<sup>175</sup>

Within Congress there is recognition that the growing dependence of U.S. military forces on precise and real-time intelligence support requires significant improvement, as well as new organizational arrangements, to defeat terror on the battlefield. Congressional testimony notes that the IC has not properly invested in new technologies while continuing to maintain too many intelligence agencies that do not fluidly share collected intelligence.<sup>176</sup> Congressional reports note that “although satellite imagery is undoubtedly useful, especially in locating fixed installations, much of the tactical intelligence used in military campaigns against terrorist units is provided by manned aircraft such as the U-2s and unmanned aerial vehicles (UAVs) such as the Predator and the long-range, high altitude Global Hawk.”<sup>177</sup> The United States will need to rely more heavily in the future on its airborne collection platforms to provide combatant commanders with real-time information, a key enabler for success in the global war on terror and of military transformation. As the United States increasingly depends on its airborne intelligence collection systems, too much of the focus traditionally has been placed on the platforms themselves to the neglect of the supporting intelligence architecture that makes the airborne platforms effective.<sup>178</sup> In the past, the U.S. focus on platforms over more effective and efficient collection and processing has resulted in a number of substantial intelligence failures.

These problems associated with intelligence collection and processing are compounded when sharing information with our coalition partners. In order to effectively and efficiently utilize coalition partners in the global war against terrorism, the United States must recognize that there is no equivalent “free trade agreement” in the

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<sup>175</sup>Kurt M. Campbell and Michele A. Flournoy, “Intelligence: The Long Pole in the Tent,” in *To Prevail: An American Strategy for the Campaign Against Terrorism*, eds. Kurt M. Campbell and Michele A. Flournoy (Washington, D.C.: CSIS Press, 2001), 77.

<sup>176</sup>Richard A. Best, Jr., *Intelligence to Counter Terrorism: Issues for Congress* (Washington, D.C.: Congressional Research Service, 21 February 2002), 15.

<sup>177</sup>Best, 18.

<sup>178</sup>U.S. Congress, House, Select Committee on Intelligence, *Intelligence Authorization Act for Fiscal Year 1997*, 104<sup>th</sup> Cong., 2<sup>nd</sup> sess., 1996, H. Rept. 104-578, 36-37. Cited hereafter as U.S. Congress, HSCI, *Intelligence Authorization Act for 1997*.

world of intelligence.<sup>179</sup> Even with an alliance as cohesive and competent as NATO, the United States has had significant issues with the level of intelligence and with member states with whom it shares information. These issues arose for many reasons but the most important was the desire to protect intelligence sources and methods from discovery. A recent example of concern to U.S. intelligence officials occurred during Operation Allied Force, when French intelligence officers allegedly leaked NATO intelligence materiel to Serbian forces.<sup>180</sup> In the current global war on terror, intelligence organizations looking at security assistance as a way to interact and share information with coalition partners must prepare for a variety of unrehearsed scenarios, with a fluid set of coalition members, against an amorphous, constantly evolving and adapting terrorist enemy.<sup>181</sup>

The House Select Committee on Intelligence (HSCI) has identified the problems associated with intelligence in the global war on terror. The HSCI cites a lack of foreign language skills and regional area expertise as impediments to complete analysis of terrorist threats.<sup>182</sup> “At the [National Security Agency] and [Central Intelligence Agency], thousands of pieces of data are never analyzed, or are analyzed ‘after the fact’ because there are too few analysts; even fewer with the necessary language skills. Written materials can sit for months and sometimes years before a linguist with proper security clearances and skills can begin a translation.”<sup>183</sup> Beneath these complaints is the widespread perception that the IC has become “collection centric,” thinking first of developing and operating sophisticated technical collection systems such as reconnaissance satellites, and only then preparing to create the systems and processes through which the information might be interpreted and disseminated.<sup>184</sup>

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<sup>179</sup>A. Stuart Farson, and others, *Security and Intelligence in a Changing World*, (London: Frank Cass, 1991), 189-190.

<sup>180</sup>John E. Peters and others, *European Contributions to Operation Allied Force: Implications for Transatlantic Cooperation* (Santa Monica, CA: RAND, 2001), 34.

<sup>181</sup>Bruce D. Berkowitz and Allan E. Goodman, *Best Truth: Intelligence in the Information Age* (New Haven, CT: Yale University Press, 2000), 115-116.

<sup>182</sup>Alison Mitchell, “House Panel Calls for ‘Cultural Revolution’ in F.B.I. and C.I.A.,” *The New York Times* (3 October 2001), URL: <<http://query.nytimes.com/gst/abstract.html?res=F40616FF3A590C708CDDA90994D9404482&incamp=archive:search>>. Accessed on 14 January 2005.

<sup>183</sup>Mitchell, “House Panel Calls for ‘Cultural Revolution’ in F.B.I. and C.I.A.”.

<sup>184</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Executive Summary, URL: <<http://www.fas.org/irp/agency/nima/commission/article02.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Executive Summary.

Overhauling the United States IC to make it more flexible, responsive, and capable will take time. The U.S. must sanction action against the Al Qa'ida network to keep its organization disrupted and its cells scattered. During the time required to imbue analysts with the language and cultural skills the United States will largely be reliant on coalition partners. Every coalition partner has something to contribute and small nations can be just as valuable as the largest partners. Some coalition partners, for example, have a much deeper understanding of the complex human and cultural terrain in their regions than the United States and can provide this critical intelligence to the coalition. The arrest of key Jemaah Islamiya (JI) terrorists in Singapore serves as an example of what coalition partners can provide.<sup>185</sup> When Singapore arrested several key JI members it was able to pass along intelligence data about potential terrorist targeting of the U.S. Embassy, as well as commercial and military facilities in the region. The United States acted on this intelligence by increasing force protection measures around the threatened facilities.<sup>186</sup> Many of the shortcomings of the United States intelligence services, including a dearth of analysts with regional background and language skills, can be addressed even in the short term by relying on coalition partners from those very areas that speak critical languages.<sup>187</sup>

The United States can achieve the increased intelligence capabilities by adopting an overarching horizontal integration (HI) strategy that compels an integrated approach to acquiring and applying collection assets to the terrorism problem.<sup>188</sup> This HI approach could integrate the entire coalition's collection capabilities, across the various human and technical intelligence disciplines, and across all levels (national, theater, tactical, and coalition) of intelligence analysis.<sup>189</sup> HI is necessary to ensure that all players, including coalition partners, have a common frame of reference and system 'plug-ins' to share and receive information seamlessly, thereby increasing the likelihood that intelligence data

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<sup>185</sup>Maria Ressa, "Indonesia: A Haven for al Qaeda?," *CNN.com* (20 March 2002), URL: <<http://edition.cnn.com/2002/WORLD/asiapcf/southeast/03/20/gen.indon.alqaeda/>>, accessed on 5 March 2005.

<sup>186</sup>Michael Herman, *Intelligence Services in the Information Age* (London: Frank Cass, 2001), 229.

<sup>187</sup>Herman, 229-230. For an in-depth review of the problems facing the intelligence community within the United States as regards foreign languages and cultural awareness use the following document: Department of Defense, *Defense Language Transformation Roadmap* (January 2005), online edition, URL: <<http://www.defenselink.mil/news/Mar2005/d20050330roadmap.pdf>>, accessed 11 April 2005.

<sup>188</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 10-11.

<sup>189</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 11.

can be correlated and fused to increase the accuracy, timeliness, and value of intelligence.<sup>190</sup> The overall aim of an HI strategy must be to take full advantage of “future intelligence systems that provide agile and persistent collectors, enable ease of information sharing, and support predictive analysis to deal with a strategic environment characterized by adaptable adversaries, accelerated technology diffusion, and the increasing potential for disruptive and destructive attacks.”<sup>191</sup> TPED for all intelligence collection systems, including UAVs, is an important first step in realizing the vision of HI, and the inclusion of the TPED process and systems should be considered as part of future security assistance programs when the United States provides intelligence collection platforms like UAVs.

The Department of Defense (DOD) recognizes the value of such an HI strategy. Dr. Stephen Cambone, the current Undersecretary of Defense for Intelligence, noted before Congress that the DOD has “begun exploring the concept of intelligence Campaign Planning, which is designed to synchronize and integrate intelligence into the commander’s adaptive planning process and, when fully developed, will bring together DOD and IC capabilities in a more synergistic effort.”<sup>192</sup> These intelligence campaign plans will focus on the intelligence community’s abilities to meet the coalition commander’s critical intelligence requirements using all of the coalition’s intelligence assets under his control.<sup>193</sup> During the Cold War, intelligence organizations developed TPED plans that were poorly coordinated across alliance structures, and often within the nation’s own intelligence agencies. Recent lessons learned in the global war on terror require intelligence plans that “are fully integrated, multi-discipline, holistic and support all phases of operations” if they are to support fully the commander’s intent and military requirements.<sup>194</sup> The fully integrated intelligence collection plans will engender the information superiority required by improving battlespace awareness support tools.

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<sup>190</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 11.

<sup>191</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 11.

<sup>192</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 12.

<sup>193</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 12.

<sup>194</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 12.

These improved intelligence capabilities will enhance TPED of intelligence data throughout all levels of conflict.<sup>195</sup>

### **General TPED Process**

TPED is usually associated with a specific intelligence collection discipline, such as imagery or signals intelligence, or to a specific intelligence collection asset. The National Imagery and Mapping Agency (NIMA) Commission, charged by Congress with identifying ways of increasing the value of TPED to the global war on terror, “received a number of briefings meant to describe TPED and its status. What becomes clear is that [the U.S.] has not articulated a single definition of TPED.”<sup>196</sup> The lack of a common single definition of TPED undermines the ability of the IC to build functional TPED processes across platform, service, and agency lines because it is extremely difficult to take a major step toward HI when the United States intelligence community cannot agree on a definition.

TPED is most commonly associated with steps in a process, for example “tasking” a reconnaissance UAV, “processing” its raw collected data, “exploiting” its processed information, and “disseminating” the resultant intelligence products. Others incorrectly believe that TPED is simply a “system,” defined within the DOD as the “assembly of methods, procedures, or techniques united by regulated interaction to form an organized whole.”<sup>197</sup> Defining TPED as a system according to the DOD, however,

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<sup>195</sup>U.S. Congress, Senate Armed Services Committee, *Statement of Lieutenant General Marvin R. Esmond, Deputy Chief of Staff, Air and Space Operations, United States Air Force*, 104<sup>th</sup> Congress, 1<sup>st</sup> session, 19 October 1999, URL: < <http://www.fas.org/man/congress/1999/99-10-19esmond.htm>>, accessed on 14 January 2005. Cited hereafter as U.S. Congress, SASC, Lt Gen Esmond Statement.

<sup>196</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 12, URL: < <http://www.fas.org/irp/agency/nima/commission/article14.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 12. The House Appropriations Conference Committee Classified Annex to the FY 2000 Department of Defense Appropriations Bill required the establishment of an independent Commission to review NIMA. The House directed the Commission to conduct a comprehensive review of NIMA's present organizational and management structures, current technology development and acquisition plans, business practices, and operational support services provided to the Defense Department and the Intelligence Community. The review included, but was not limited to: The optimal future configuration of the management structure at NIMA; The most effective future course for NIMA's strategic technology development and acquisition programs.

<sup>197</sup>*Department of Defense Dictionary of Military Terms*, online ed., as amended through 30 November 2004, under the term “system,” URL: < <http://www.dtic.mil/doctrine/jel/doddic/dict/data/s/05215.html> >, accessed on 7 January 2005.



Congress had during their review of the Future Imagery Architecture (FIA).<sup>200</sup> FIA was designed to provide a significant increase in collection capability from national intelligence collectors. Congress repeatedly noted during its review that despite spending billions of dollars on the FIA-collection platforms themselves, almost no planning had been performed on how to design TPED to support the increased collection capability.<sup>201</sup> Finally, when TPED for FIA was introduced, it did not include any capability to combine intelligence collected from airborne, commercial, or FIA providers.<sup>202</sup> The United States has historically relied on a patchwork TPED architecture, but the NIMA Commission noted that the “issue of TPED is at the heart of how the Intelligence Community collects raw intelligence data, and then in a timely manner, turns it into a product that is understandable and usable to a wide variety of consumers, from the President of the United States to the military commander in the field.”<sup>203</sup> The U.S. military cannot hope to achieve comprehensive situational awareness for its forces, much less full information dominance, until it solves the types of problems associated with TPED.

The current TPED problem in the United States derives largely from a domestic infatuation with Cold War high-technology intelligence. The technology is very expensive, and although intelligence spending is officially classified, many press reports quote a figure of between \$28-30 billion per year prior to September 11.<sup>204</sup> Regardless of the actual amounts involved, according to an unclassified breakdown of the current budget, almost two-thirds of the U.S. spending focuses on the technical collection agencies such as the National Reconnaissance Office (NRO) and the National Security Agency (NSA).<sup>205</sup> During the Cold War, money was spent on collection technology and not the supporting TPED architecture.<sup>206</sup> The United States could rely on extended periods for strategic warning using the existing intelligence structure, and its bureaucratic

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<sup>200</sup>NIMA Commission Final Report, Chapter 12.

<sup>201</sup>NIMA Commission Final Report, Chapter 12.

<sup>202</sup>NIMA Commission Final Report, Chapter 12.

<sup>203</sup>U.S. Congress, Senate Select Committee on Intelligence, *Intelligence Authorization for FY2001*, 106<sup>th</sup> Congress, 1<sup>st</sup> session, Report 106-279, 4 May 2000, URL: <[http://www.fas.org/irp/congress/2000\\_rpt/sl 06-279.html](http://www.fas.org/irp/congress/2000_rpt/sl 06-279.html)>, accessed 14 January 2005. Cited hereafter as U.S. Congress, SSCI, *Intelligence Authorization for FY 2001*.

<sup>204</sup> Bruce D. Berkowitz, “Information Technology and Intelligence Reform,” *Orbis* (Winter 1997, Volume 41), 107.

<sup>205</sup>Valerie A. Ormond, *The Role of Intelligence Analysis in the War on Terrorism* (Carlisle Barracks, PA: Army War College, 2002), 6.

<sup>206</sup>Ormond, 6.

inertia, with its inherent “stove pipe” TPED. The reason these systemic shortfalls with TPED were overcome was that the enemy as well as our allies were clearly defined, and the links tying our intelligence architecture in place well understood.

TPED is critical for sustaining the drive for information dominance in the United States but the current architecture is not adequately designed to support the global war on terror.<sup>207</sup> National security decision making in the United States has relied on past assessments of security versus risk when sharing intelligence with its alliance partners. This paradigm, while appropriate for the Cold War, may not work in today’s coalition-centric global war on terror, as Chapter 5 will demonstrate.<sup>208</sup> The NIMA Commission noted that a robust TPED architecture was “absolutely critical but [it] does not see this urgency reflected in the programming and budgeting for TPED. By way of explanation or excuse, critics have recited their litany of Cold War related TPED ills.”<sup>209</sup> To address the threat posed by global terrorism, the United States must be able to use its considerable coalition intelligence advantages more quickly and efficiently. The NIMA Commission emphasized this point when it argued that “TPED, in all its dimensions, is the key to ‘faster and better.’ Our use of imagery and imagery-derived intelligence must put us inside the adversary’s decision cycle. The importance of TPED for information dominance cannot be overstated.”<sup>210</sup> In addition, the Commission noted that the character of imagery has changed from interpretation of imagery collected through national-level systems to today’s real-time, multi-spectral video feeds from UAVs used in the global war on terror.

As mentioned previously, modern information age warfare has turned the Cold War TPED model on its head. During the Cold War, intelligence reports written by tactical units were sifted and analyzed by national agencies and centralized for the benefit of national decision makers.<sup>211</sup> Currently TPED is more distributed, as the national intelligence collection systems and subject-matter expertise once dedicated to supporting

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<sup>207</sup>NIMA Commission Final Report, Executive Summary.

<sup>208</sup>NIMA Commission Final Report, Executive Summary.

<sup>209</sup>NIMA Commission Final Report, Executive Summary.

<sup>210</sup>NIMA Commission Final Report, Chapter 12.

<sup>211</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 5, URL: < <http://www.fas.org/irp/agency/nima/commission/article7.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 5.

a select group of national decision makers now support a vastly expanded base of coalition, theater, and tactical users as well.<sup>212</sup> In the United States, the interoperability of intelligence systems supporting efforts in the global war on terror is essential for intelligence producers and consumers in a distributed worldwide network. Furthermore, according to the National Security Strategy the intelligence database must be integrated with all of the nation's defense and law enforcement organizations and open to our allies and coalition partners in order to be truly effective.<sup>213</sup>

TPED is the critical enabler that can make these interoperable systems a reality and lead to a much quicker and more successful prosecution of the global war on terrorism. In order to meet the obligations specified in the National Security Strategy, TPED must perform four basic functions: first, the system must efficiently and effectively apportion the coalition's collection capability against possible targets; second, an extraction function must be capable to recognize information of intelligence interest; third, a filtering function must exist to shield the consumer from information overload; and finally, a synthesis function is necessary to assemble logically all the relevant facts that reasonably lead to a significant conclusion.<sup>214</sup> Without these four functions in place the resulting TPED means that "good intelligence is useless if it cannot be shared, analyzed, or fused with other sources, or if the intelligence community fails to share intelligence information effectively."<sup>215</sup> An efficient TPED architecture should enable good intelligence and the functions described below are critical to TPED. The component elements of the TPED process are critical because if each of the components is not fully understood, or if their relationship to one another is inaccurate, it is highly doubtful that an effective TPED system can be created.

## Tasking

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<sup>212</sup>NIMA Commission Final Report, Chapter 5.

<sup>213</sup>The White House, *National Security Strategy of the United States* (Washington, D.C.: White House Printing Office, September 2002), i-ii. Cited hereafter as *National Security Strategy*, 2002, 30.

<sup>214</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 9, URL: < <http://www.fas.org/irp/agency/nima/commission/article11.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 9.

<sup>215</sup>Ormond, 21.

Tasking, or the first element of TPED, normally begins with the commander's intent and prioritized intelligence requirements (PIRs).<sup>216</sup> From there analysts and collection managers break down these PIRs into essential elements of information (EEIs) to identify which assets on hand can best fill those EEIs. From this point, intelligence collection taskings are generated and disseminated to the collection platforms.<sup>217</sup> While the commander's PIRs should drive the collection process as described in joint doctrine, this is not always the case. During Operation Iraqi Freedom (OIF) the collection effort "was responding to the speed of maneuver on the battlefield. Notwithstanding this fact, the direction and collection process became deferential to tactical or time sensitive events as opposed to executing a synchronized and prioritized collection plan based on PIRs."<sup>218</sup> The global war on terror is characterized by a similar tempo, which is a function of its global scope and scale, where speed in reacting to tasking is as critical to success as it was during OIF. More focus on tasking is required to assign properly coalition intelligence collection assets.

Having identified EEIs, collection managers then begin collection planning using the assets under their control. The decision on how to apply coalition intelligence sensors to collect the appropriate data is similar, on many levels, to how warfighters plan to attack a target.<sup>219</sup> Once the collection asset best able to fulfill an EEI tasking is selected, the collection manager must identify a complete collection platform mission to ensure all assigned targets can be covered effectively. This step is often referred to as a "collection route plan."<sup>220</sup> Once the collection route plan is built it needs to be uploaded to the collection sensor itself. For remote systems, such as UAVs and satellites, this usually involves uploading a software plan to the platform itself. For 'man-in-the-loop' systems, such as manned aircraft, the crew builds mission materials and briefs its plan of attack as any airborne mission would do.<sup>221</sup>

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<sup>216</sup>U.S. Air Force, Air Force Doctrine Document 2-5.2, *Intelligence, Surveillance, and Reconnaissance Operations* (n.p., 21 April 1999), 21. Cited hereafter as AFDD 2-5.2, *ISR Operations*.

<sup>217</sup>Major Jeffrey R. Sgarlata, USAF, Instructor, Intelligence Sensor Weapons Instructor Course, USAF Weapons School, Nellis AFB, NV, telephone interview by the author, 11 February 2005.

<sup>218</sup>Carl M. Bradley, *Intelligence, Surveillance, and Reconnaissance in Support of Operation Iraqi Freedom* (Newport, RI: Naval War College, 9 February 2004), iv, 8.

<sup>219</sup>Sgarlata Interview.

<sup>220</sup>Sgarlata Interview.

<sup>221</sup>Sgarlata Interview.

When the collection manager decides how to fulfill EEIs using coalition collection assets, their tasking flows from an expression of information needs and it logically starts with an investigation of what already exists.<sup>222</sup> Typical questions they consider at this stage include: Is the required data already in an intelligence database? Is a product already in inventory that, with modification, can meet the EEI? The nature of these questions illuminate why a fully interoperable intelligence database is critical to TPED. If the collection manager has access to the information collected by all collection assets, those of both the United States and its coalition allies, many EEIs will be filled from existing information.<sup>223</sup> By using existing data the collection manager can efficiently and effectively apply the coalition's collection assets to fill unanswered EEIs.<sup>224</sup>

Tasking is thus the process used to ensure that the right image gets taken at the right time.<sup>225</sup> Among coalition partners, appropriate tasking avoids inefficient use of finite collection capabilities and the opportunity costs associated with redundant or excessive collection. Since collection capacity is a scarce resource, tasking includes the optimization of that scarcity and requires a fully interoperable information database of previously collected information. In the global war on terror, the collection manager can use the interoperable database and their technical insight into specific collection systems to accomplish proper tasking.<sup>226</sup> Consequently, a corps of trained coalition partners with equal access to a common information database can mediate between the information needs of intelligence consumers and the tasking of coalition collection systems to provide the intelligence critical to victory in the global war on terror.<sup>227</sup> A truly interoperable tasking function would allow intelligence collection managers to task collection assets without regard to the nationality of the collection asset.<sup>228</sup>

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<sup>222</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 14, URL: < <http://www.fas.org/irp/agency/nima/commission/article16.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 14.

<sup>223</sup>NIMA Commission Final Report, Chapter 14.

<sup>224</sup>NIMA Commission Final Report, Chapter 14.

<sup>225</sup>Sgarlata Interview.

<sup>226</sup>NIMA Commission Final Report, Chapter 12.

<sup>227</sup>NIMA Commission Final Report, Chapter 12.

<sup>228</sup>TPED is the approved Joint term for the intelligence tasking, processing, exploitation, and dissemination cycle. Under this construct the actual collection of information by the intelligence collection platform is

## Processing

Processing involves getting the collected raw data back to a platform specialist who builds the raw data into a form that intelligence analysts can utilize in their products.<sup>229</sup> For the remote digital sensors this means correlating all the raw data at an analysis facility, which in turn converts the raw data into a finished information product. The processing method is dictated by the specific collection platform and is usually embedded as part of that system.<sup>230</sup> As an example, the focused raw imagery data is formed on-board the Predator aircraft, compressed, and then sent to the Predator Ground Control Station (GCS) over a satellite data link. The raw imagery data is then reformed and displayed in near-real time on the workstation displays in the GCS and simultaneously to customers located all over the world via satellite communications. This architecture is shown in Figure 2. During processing there are usually heavy computing demands as well as a requirement for intimate technical knowledge of the collector, such as UAVs.<sup>231</sup>

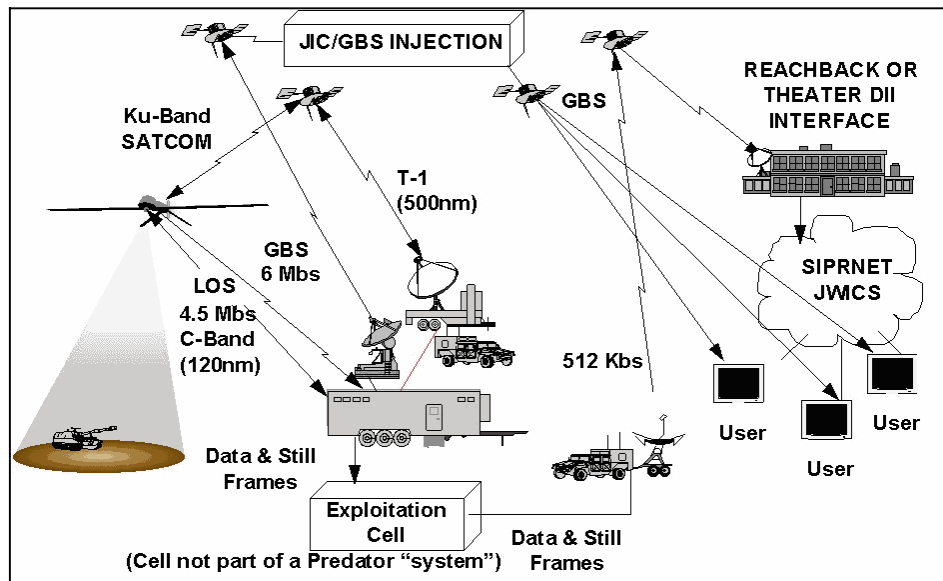
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performed in the tasking phase of the cycle. The Air Force is currently promoting the more accurate acronym TCPED, with the “C” representing the actual collection performed by the tasked platform, but this new model has yet to gain Joint approval.

<sup>229</sup>Sgarlata Interview.

<sup>230</sup>Sgarlata Interview.

<sup>231</sup>NIMA Commission Final Report, Chapter 12.



**Figure 2: Hypothetical Predator Processing Diagram**

Source: Air Combat Command, *Concept of Operations for Endurance Unmanned Aerial Vehicles*, Version 2 (3 December 1996), online edition, URL: < [http://www.fas.org/irp/doddir/usaf/conops\\_uav/part03.htm](http://www.fas.org/irp/doddir/usaf/conops_uav/part03.htm)>, accessed on 11 April 2005.

The bulk of processing is the automated, rote application of algorithms that transform raw collected information into a product better suited for exploitation by the end users.<sup>1</sup> It is imperative that intelligence collection systems aim for interoperable products at the end of the processing phase. The raw data produced by each coalition partner's collection systems will probably be platform-specific, but this is not a problem as long as the end-product of the processing cycle is an interoperable information product that flows easily into the overall intelligence database.<sup>2</sup> There is a continuum between collection, processing, and exploitation. In the global war on terror processing is where the raw collected data is transformed into information accessible by human analysts.<sup>3</sup>

## Exploitation

Exploitation varies from collection discipline to discipline, but its common function is to work with the collected and processed information to turn it into

<sup>1</sup>NIMA Commission Final Report, Chapter 12.

<sup>2</sup>NIMA Commission Final Report, Chapter 12.

<sup>3</sup>NIMA Commission Final Report, Chapter 12.

intelligence products. To succeed at this task, the analysts must be trained to work with their specific collection medium and the anticipated target set.<sup>4</sup> By combining their knowledge of their collection system, with its associated strengths and weaknesses, and their knowledge of the unfulfilled EEIs, the analysts can produce the best actionable analysis.<sup>5</sup>

In this sense, the succession of additional exploitation steps taken by each analyst can be viewed as transactions against the coalition's intelligence database.<sup>6</sup> The processed information is pulled from the database, value is added by the analyst based on their experience and knowledge, and the modified intelligence is written back into the database.<sup>7</sup> Thus, exploitation can be seen as a series of transactions involving the process whereby processed information becomes exploited analysis, which continually enriches the coalition's intelligence database.<sup>8</sup>

Exploitation is perhaps the easiest of the TPED functions to define as it comprises all those activities that transform information into intelligence.<sup>9</sup> In the global war on terror this is the link in the TPED chain that has the highest potential payoff for the United States operating in a coalition environment. If the U.S. can train its coalition allies to exploit their own collected materials in a manner consistent with American data standards, the payoff could be tremendous for many reasons. The United States, in this one step, could vastly increase the number of analysts employed against terror while also gaining insights, derived from their local knowledge, opinions, and cultural awareness from coalition partners in their analysis.

## **Dissemination**

Dissemination of analyzed intelligence is composed of two codependent processes.<sup>10</sup> In the first process, broadcasting, the intellectual task is identifying all the potential customers for the finished intelligence analysis. On the surface this marriage is

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<sup>4</sup>Sgarlata Interview.

<sup>5</sup>Sgarlata Interview.

<sup>6</sup>NIMA Commission Final Report, Chapter 14.

<sup>7</sup>Joint Chiefs of Staff, Joint Publication 2-0, Doctrine for Intelligence Support to Joint Operations (n.p., 9 March 2000), II-11. Cited hereafter as JCS, Joint Pub 2-0.

<sup>8</sup>NIMA Commission Final Report, Chapter 14.

<sup>9</sup>NIMA Commission Final Report, Chapter 12.

<sup>10</sup>Sgarlata Interview.

straightforward, as the originator of the initial EEI is easily identified as the primary customer. For broadcasting to be truly effective, however, it must reach much further, as in intelligence there are multiple customers for each piece of analyzed intelligence and in many cases these potential customers may not realize they can use the intelligence until after they have reviewed it.<sup>11</sup> The second process, working concurrently with dissemination, is distribution. Distribution is the actual process of delivering the analyzed intelligence to the consumer.<sup>12</sup>

As with almost every aspect of TPED, the processes involved in dissemination would be best served by the interoperable coalition intelligence database.<sup>13</sup> In the case of broadcasting, a background process, driven by preexisting tables that codifies customer's requirements, can match itself against new postings to the database. The distribution of intelligence within this database is then simply a process of either sending the analyzed intelligence to the customer automatically or simply notifying the customer that intelligence of interest has been posted to the coalition's database.<sup>14</sup>

Dissemination connotes getting the right information to the right place at the right time, all of which is composed of the two parts described above: distribution, the physical process of getting it there; and broadcasting, or deciding what information goes where. Of the two, distribution historically appears to be the more expensive and difficult, as well as the most tedious for those who must do it.<sup>15</sup> The logical process of dissemination is by far the more intellectually challenging as potential customers for exploited intelligence may not be readily apparent, identified, or accessible while conducting coalition operations against terrorism.<sup>16</sup> In order for the "hidden" customers to recognize and utilize the intelligence, such information must be easily identified in a central database that analysts can data mine. This means that all the TPED processes, and the subsequent analytic processes, would become transactions against the coalition's

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<sup>11</sup>Sgarlata Interview.

<sup>12</sup>Sgarlata Interview.

<sup>13</sup>NIMA Commission Final Report, Chapter 14.

<sup>14</sup>NIMA Commission Final Report, Chapter 14.

<sup>15</sup>NIMA Commission Final Report, Chapter 12.

<sup>16</sup>NIMA Commission Final Report, Chapter 12.

interoperable intelligence database, each deriving value from, as well as adding value to, the database.<sup>17</sup>

A hypothetical example of the importance of a functioning TPED process may help to illustrate TPED's importance to the global war on terrorism. In this example, an analyst working in an intelligence center ties existing intelligence products together to deduce that a top Al Qa'ida operative requires medical attention for an existing kidney condition and is going to receive treatment on a particular day. While the operative's exact location remains unknown, it is strongly believed that he is generally located in southern Waziristan, a tribal province in western Pakistan. The analyst asks his intelligence collection manager to identify hospitals with the equipment needed to treat the Al Qa'ida operative in the region and then to monitor those locations for his potential arrival.

The collection manager thus has many different taskings that need to be filled to meet the analyst's requirements, but the most important are to identify the potential hospitals and to task intelligence collection assets on these locations to provide surveillance for the operative's potential arrival. The collection manager contacts his Pakistani counterpart, who has access to the same intelligence taskings database, for information about hospitals in the province that possess the equipment to treat the kidney disease, and is informed that three separate facilities fulfill the minimum requirements. Two of the facilities are located in remote towns, while one of them is located in Wana, the provincial capital of Waziristan. Due to its location in a busier area, the facility in Wana is tasked to a special operations surveillance force to monitor. The other two facilities, however, cannot be watched by human operatives without potentially alerting the Al Qa'ida operative to their presence, so they are tasked to Predator UAVs for discreet surveillance.

On the appointed day, the special operations team is in place and the Predators are in their respective orbits. The Predator UAVs flying over Pakistan are being flown by crews located in the continental United States. These crews rely on their existing TPED architecture to process the raw information of what the Predator sees thousands of miles away and turn this data stream into a recognizable video format. While watching their

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<sup>17</sup>NIMA Commission Final Report, Chapter 14.

video screens, one of the sensor operators notices a four vehicle convoy approach the hospital and stop. Exploiting the Predator video feed, the operator writes a priority message that the Al Qa'ida operative may have arrived at the hospital. The sensor operator then disseminates this message to all potential customers for this information, including a waiting coalition special operations capture team comprised of Pakistani and American commandos. Armed with the intelligence gathered from the Predator UAV the coalition commandos secure the area around the hospital, and after a brief firefight, capture the Al Qa'ida operative for interrogation.

Although overly simplified, this hypothetical example highlights the crucial enabling role that an interoperable coalition TPED process can have in the global war on terrorism. The ability to task all coalition members to share existing intelligence as well as optimize the pool of available intelligence assets provides increased flexibility over unilateral American efforts. If all coalition members then share common processing and exploitation capabilities, as well as all receive intelligence through the same dissemination channels, the increase in actionable intelligence could be a major factor in increasing the number of successful coalition operations in the global war on terrorism. Such a coalition TPED process does not currently exist, and building one is a decision that must be made by weighing the potential benefits against the expected costs. The ability to implement such an architecture, however, does exist if the United States decides to invest the financial and political capital in such a TPED process. The benefits and costs of such a decision are not insubstantial, and are the subject of the next chapter. However there is a basis for instituting a coalition TPED system should it be desirable. That model is the DOD's Distributed Common Ground/Surface System (DCGS).

### **Coalition TPED**

The DOD has a foundation that it could use to build a coalition TPED process to increase the networking of coalition collection systems, improve access to analyzed intelligence, and increase interoperability across the coalition. The DCGS is the DOD's overarching family of interconnected intelligence systems for U.S. TPED.<sup>18</sup> American intelligence collection assets are already an element of, or at least have a major interface

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<sup>18</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 9.

with, the DCGS. DCGS is also the DOD's hub to implement effectively the information sharing relationships between warfighters, individual military service intelligence analysts, and various national intelligence agencies.<sup>19</sup> The United States has an interoperable intelligence TPED process in the DCGS that could be used for coalition operations.

A key feature of DCGS, one that is critical to coalition operations, is that the system is constructed so the collected data is separated from the individual applications used to turn the information into intelligence.<sup>20</sup> Currently each user can, at their discretion or by direction of higher authority, employ the same applications. Alternatively, the users are free to assemble and present the collected data in a manner most appropriate to their needs. In other words, the United States has avoided a single solution in favor of the ability to create a user-defined collection process on demand.<sup>21</sup> In a coalition environment this structure would allow all partners to utilize each other's collected data individually. Although the data are in a common format, what is done to it and how it is turned into finished intelligence could be country specific. Thus DCGS holds the potential to support integrated mission management by allowing all the available collected data to be accessed by any interested user.<sup>22</sup> This data interoperability would reduce the overall demand on collection assets by eliminating unnecessary duplication of effort and maximizing the processing of the total collected data.<sup>23</sup>

## **Conclusion**

This chapter outlined the TPED process, emphasizing its importance to coalition operations in the global war on terror, as well as highlighting that a foundation for a potential coalition TPED database exists today. The major hurdle to designing such a TPED system for coalition use, however, is that the United States still has not settled on a common definition of TPED or built such an interoperable database for its domestic intelligence community. The current domestic TPED system does not account for the

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<sup>19</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 9.

<sup>20</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 9.

<sup>21</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 9.

<sup>22</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 9.

<sup>23</sup>U.S. Congress, SASC, *Dr. Cambone Statement*, 9.

realities of the global nature of the war on terrorism; the limitations of domestic intelligence community analysts; and the capabilities of modern and future intelligence collection platforms, such as UAVs. This chapter has provided an overview of how a functioning TPED process should work, as well as suggested that the model for a coalition TPED process already exists within the DOD's DCGS. Although the United States has the capability for designing and leading an interoperable coalition TPED process, there are opportunities and potential drawbacks in doing so. The next chapter assesses those in detail, and examines the trade-offs associated with such a decision.



## **Chapter 4**

### **Costs and Benefits**

The United States government has already recognized that it can achieve many of the same benefits by providing unmanned aircraft through security assistance programs as it has historically received supplying manned aircraft. As the supplier of military equipment the United States has gained leverage with its coalition partners and thereby enhanced its leadership position, in the global war on terror. The major difference in the manned and unmanned programs, however, is found in the tasking, processing, exploitation, and dissemination (TPED) infrastructure support required for the most effective utilization of the platforms.<sup>24</sup> When the United States provides manned and unmanned aircraft through security assistance, it has previously only included training, maintenance, and logistic support for the platform itself, in effect allowing the recipient country to integrate equipment in a manner consistent with their national preferences and military style. This method was successful during the Cold War because most security assistance transfers were safeguarded through bilateral agreements, regional exercises, and existing alliance structures that ensured recipient states could use the equipment interoperably with the United States. The approach to security assistance described above does not suit U.S. operational and strategic requirements for the global war on terrorism, nor does it account for the development and sale of intelligence platforms such as unmanned aerial vehicles (UAVs).

To reap the full potential of UAV sales through security assistance, the United States should include TPED capabilities to its coalition partners; the potential benefits of doing so, however, does not come without costs and risks. As with any proposed change in a major U.S. government program there are advantages and disadvantages associated

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<sup>24</sup>William Cahill, Major, Chief, International C4ISR Programs, Deputy Undersecretary of the Air Force, International Affairs, 10 December 2004.

with including TPED in security assistance. This chapter examines the benefits and costs and concludes that the United States should include TPED in future security assistance sales of UAVs to coalition partners in the global war on terrorism.

### **Benefits of Including TPED Within Security Assistance Programs**

Including a common TPED architecture in future UAV security assistance sales to allied and coalition partners has a number of positive aspects, including: ensuring United States command in the coalition structure fighting the global war on terror, maintaining unity of effort within the coalition, and maintaining a strong domestic defense industrial base. Ensuring the United States a position of leadership in the coalition against global terrorism is critical to meeting the nation's national security goals.<sup>25</sup> The United States currently finds itself as the primary target for global terrorism. If it does not assume the mantle of leadership in the coalition it will, in large measure, be relying on other nations for its protection from the terrorist threat. The United States cannot allow this situation to develop. Terrorists are trying to gain weapons of mass destruction (WMD), if they have not already gained them, and have already shown the will to use them as they did in Aum Shinrikyo's 1995 sarin gas attack in the Tokyo subway system.<sup>26</sup> The United States and its coalition partners currently have the terrorists on the defensive, a situation that must be maintained. If the United States loses the leadership position within the coalition, or if the coalition begins to fragment over time, the threat of global terrorism will grow.

The United States should use its leadership position to implement its TPED process to confirm the coalition moves in the direction it intends by utilizing a unity of effort approach. In this design the United States seeks to influence the direction of the coalition by making certain that all the coalition partners are working in concert with each other to maximize their collective intelligence effectiveness and efficiency.<sup>27</sup> Finally, the inclusion of TPED within security assistance programs will help the United

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<sup>25</sup>The White House, *National Security Strategy of the United States* (Washington, D.C.: White House Printing Office, September 2002), 5-6, 25. Cited hereafter as The White House, *National Security Strategy*.

<sup>26</sup>Peter J. Katzenstein, *September 11 in Comparative Perspective: The Antiterrorism Campaigns of Germany and Japan*, online article, URL: <<http://journals.cambridge.org/bin/bladerunner?30REQEVENT=&REQAUTH=0&500001REQSUB=&REQSTR1=S777777702000043>>, accessed on 5 May 2005.

<sup>27</sup>Joint Chiefs of Staff, Joint Publication 3-16, *Joint Doctrine for Multinational Operations* (Washington, D.C.: Government Printing Office, 5 April 2000), II-9 through II-11. Cited hereafter as JP 3-16.

States continue to protect its domestic defense industrial base in keeping with the historical precedent of previous security assistance programs.

### **U.S. Leadership in the Global War on Terror**

One of the primary reasons the United States established the security assistance program was to gain and maintain a leadership position in world affairs. The United States ensured its leadership position among its Allies in World War II by providing them with the military materiel to strike common enemies. The Allies recognized that their success or failure in the war depended, in large part, on the continued supply of American military materiel. The United States leveraged this dependence, in part, to gain its leadership role among the Allies during the War. Similarly, during the Cold War, the United States used the security assistance it provided to its allies around the world, but especially within the North Atlantic Treaty Organization (NATO), to maintain its role at the forefront of the West's fight against communism. Today the United States faces a new global threat in the form of terrorism, and it has been widely recognized that the U.S. wants to maintain its leadership role in the coalition fighting the global war on terror.<sup>28</sup>

The United States recognizes that it has the power to influence events across the globe as the sole remaining superpower.<sup>29</sup> No other nation currently has the ability to influence events and shape the international environment to the level and extent of the United States. This does not mean that the United States and its leadership role are unchallenged. Many nations, even historical allies such as France, view the current unipolar world with tremendous suspicion.<sup>30</sup> If the United States is unable to maintain its leadership position in the global war on terrorism it risks a corresponding decrease in the effectiveness of its anti-terrorist actions as the interests of the coalition and the United States begin to diverge. The United States is the only coalition partner in the global war on terrorism with a truly global power projection capability, but the effective use of this unique feature is undermined if the United States does not maintain its leadership position.

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<sup>28</sup>Andrew Gamble and Tony Wright, "The Fallout from Iraq," *The Political Quarterly* Volume 75 number 3 (July 2004), 209-210.

<sup>29</sup>The White House, *National Security Strategy*, 1.

<sup>30</sup>Eric A. Kraemer, *The Systemic Basis of American Power* (Washington, D.C.: National Defense University, 24 September 1999), 8.

The global landscape of World War II and the Cold War have changed, however, and the United States must adapt the security assistance program to meet these changes. In order to maintain its leadership position within the coalition against terrorism the United States must begin to include more lucrative equipment and technology to potential coalition allies. The global arms market has become more competitive and potential allies now have multiple sources for military materiel other than the United States.<sup>31</sup> Inclusion of TPED within security assistance as part of UAV transfers represents a change in U.S. policy to assist in maintaining its leadership over the coalition against terrorism in three ways: expanding U.S. access and influence while reducing its forward presence; increasing the incentives for nations to join the coalition; and, finally, by sharing the burden of defeating terrorism across the coalition.

### **Expanded U.S. Access, Influence, and Reduced Forward Presence**

Selling and providing equipment to other countries through security assistance is one way the United States can expand its access and influence to overseas bases, personnel, facilities, and information.<sup>32</sup> Access and influence is achieved through military-to-military contacts and the support provided to coalition partners who purchase military equipment from the U.S. Coalition partners, such as Pakistan and the Philippines, are already providing the United States access to their national territories and intelligence information in exchange for security assistance aid.<sup>33</sup> The United States can expect that level of access to continue and even increase with further security assistance sales of modern military technology and equipment.

As the United States gains increasing access to its coalition partners in the global war on terror it can expect to see the amount of influence it has with those coalition partners to increase. Influence is based on trust, and this trust must work in both directions: from the United States to its coalition partners and from the coalition partners back to the United States. To identify those nations worthy of the trust of the United

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<sup>31</sup>Rose. E. Gottemoeller, "Arms Control in a New Era" *The Washington Quarterly* (Spring 2002), Volume 25, Number 2, 45-48.

<sup>32</sup>Michael Beard, *United States Foreign Military Sales Strategy: Coalition Building or Protecting the Defense Industrial Base* (Maxwell Air Force Base: Air War College, 1995), 5.

<sup>33</sup>Captain Brian Sidari, United States Air Force MQ-1 and MQ-9 Predator Functional Manager, Headquarters United States Air Force, interview by author, 8 November 2004.

States, the government will need to identify a set of parameters that future coalition partners must meet in order to gain access to the security assistance programs that support the global war on terrorism. Such criteria as national stability, terrorist threat, proximity to areas of concern, and past acts will play a major role for the United States in deciding which nations it can trust to positively impact coalition operations. Earning the trust of coalition partners will be largely case-dependant for the United States. In those nations that the U.S. has built a proven record of reciprocal trust, such as with the United Kingdom or Japan, such trust should easily transition from past interactions to the global war on terrorism. In other areas of the world, however, where the United States has not maintained a long-term relationship for any of a myriad of reasons. The building of reciprocal trust leading to influence is likely to be a long and difficult road. In these cases the United States government will need to examine the costs and benefits of attempting to establish such a relationship, and in the cases where such an examination calls for it, begin the process of initiating a mutually acceptable relationship.

The United States will not gain access to its coalition partners solely on the basis of trust and influence. Some coalition partners will be wary of overt American security assistance as they do not want to appear to be accepting U.S. domination in the eyes of their population. In these nations reliance on information sharing, utilizing a common TPED architecture may be the best possible solution as the relationship minimizes the visible U.S. presence. Other nations may be hesitant to become reliant on American-supplied security assistance programs. In the past the United States has used security assistance to increase its influence by threatening to cut off the logistics support and technical assistance for past security assistance sales.<sup>34</sup> When a coalition partner purchases military technology through security assistance their dependence on the United States for continued military support increases the U.S. influence with that coalition partner. This is not to say that American influence once security assistance sales have been completed is infinite. The Iranian military's use of American technology did not stop students from taking American hostages in 1979. The threat to halt support for Pakistan's F-16 aircraft did not stop them from proceeding with its nuclear tests in

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<sup>34</sup>Sidari Interview.

1990.<sup>35</sup> Past decisions such as these have a ripple effect that extends into the current coalition fighting the global war on terrorism as future coalition partners are wary of the fickle nature of future U.S. supplied security assistance support.

The ability to rely on its coalition partners for intelligence support through an interoperable TPED procedure holds tremendous promise for the United States to redistribute its forward deployment of its personnel and assets.<sup>36</sup> By relying on its coalition partners for intelligence support the United States would not need to deploy as many intelligence assets forward in the global war on terror. This reduction does not entail a complete removal of forward presence because the benefits of American troops on the ground reassures coalition partners that the United States is fully engaged. TPED technology enables a redistribution in the forward footprint via “intelligence reachback” whereby the United States relies on its TPED to permit deployment of platforms and sensors, like UAVs, to forward operating areas without also deploying intelligence analysts and infrastructure into theater. TPED reachback enables the intelligence platforms to provide their collected intelligence data directly to military forces and the intelligence community in the United States. The same reachback capability allows forward deployed commanders to tap into finished analytical products back in the United States. If the coalition partners are allowed access to this TPED technology the United States would, in effect, dramatically increase the amount and quality of both the collected data and analyzed information by utilizing the capabilities of its coalition partners while reducing the volume and presence of assets deployed overseas.<sup>37</sup>

The reduction of the forward footprint is not without its own risks. The United States could potentially become overly dependent on its coalition partner’s version of the ground truth as the number of forward-deployed American personnel decreased. While the coalition partners can often provide keen insight, especially where cultural differences reduce American analysts’ ability to identify critical intelligence, they can also be incorrect in their analysis. If the United States chooses to reduce its forward footprint it must be careful not to reduce its deployed personnel to the point that it becomes totally

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<sup>35</sup>Beard, 5.

<sup>36</sup>Sidari Interview.

<sup>37</sup>U.S. Congress, Senate, Armed Services Committee, *Statement of Dr. Stephen A. Cambone*, Undersecretary of Defense for Intelligence, 109<sup>th</sup> Congress, 1<sup>st</sup> session, 7 April 2004, 11. Cited hereafter as U.S. Congress, SASC, *Dr. Cambone Statement*.

reliant on coalition allies. The concept here relates back to President Ronald Reagan's adage that the United States must "trust, but verify."<sup>38</sup> The allied intelligence analysis, while well-intentioned, may not have the experienced analysts the United States has developed or, in some cases, those foreign analysts may only pass on the intelligence information they want the United States to hear in the attempt to continue security assistance funding and materiel support.

Leadership in the coalition fighting the global war on terrorism is thus based on a mix of trust, respect, responsibility, and worries. Inclusion of TPED technology in future security assistance programs thus helps to validate leadership of the coalition united in the global war on terrorism because it increases the United States access into and influence with its coalition partners while concurrently reducing the demands for a large forward footprint. Security assistance programs, and the inclusion of TPED in future transfers, is part of the overall package the United States can utilize to help foreign nations' mitigate terrorist threats within their borders while also cementing the U.S. coalition's position of leadership. Coalition partners will be attracted to the coalition once they realize that the United States is willing to share critical TPED processes and technology with them. Once these nations come to rely on American designed, developed, and supplied TPED, the leadership of the coalition by the United States is enhanced.

### **Increasing the Incentive to Join the Coalition**

The leaders of some nations, such as France, do not believe that global terrorism is as threatening as does the United States. They depict terrorism more as a domestic issue best handled via existing law enforcement means. These nations may not see themselves as targets of terrorism until attacked, as in Indonesia and Spain, or just do not want to have their relationship with the United States publicly acknowledged, as is the case in Jordan. Many of these nations, like Jordan and Indonesia, are located in critical areas of the globe in which the United States needs coalition partners to effectively deal with terrorism. Security assistance is one of a number of government programs that the

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<sup>38</sup>Gottemoeller, 45.

United States could utilize to draw such nations into the coalition against global terrorism.<sup>39</sup>

These nations will quickly realize the benefits that accrue to nations within the coalition against terrorism if the United States outfits its coalition partners with the latest military technology and training on how to use it, which thereby increases the influence the United States can wield with these coalition partners, at least in the short- and mid-term.<sup>40</sup> These tangible benefits might be enough to entice states to join the coalition against terrorism. If the United States uses security assistance properly these nations may join the coalition not only because they need to deal with the terrorist threat, but also for reasons of self-interest. The potential partners in this latter category may view the acquisition of modern military capabilities as easing their membership into regional organizations, such as NATO, or they may want modern military equipment in order to deal with domestic issues. In any case, the result is a symbiotic relationship as the United States gains another ally capable of providing intelligence to the coalition while the new coalition partner gains access to military capabilities they would otherwise never attain.

The United States must be aware of the domestic audience for its coalition partners when offering increased security assistance in the global war on terror. During the Cold War governments that accepted large amounts of security assistance aid risked being labeled as “client states” by their domestic opposition. The global war on terror has dissipated some of this risk as the nations participating in the coalition against terrorism can normally highlight a domestic threat to their populations to justify the need for increased security assistance from the United States, but suspicions regarding long-term American motives remain in many areas of the world.<sup>41</sup> The United States can go a long way to dissipate such concerns by providing baseline military capabilities for coalition members as well as increasing their ability to support the coalition’s intelligence TPED requirements. In this way the United States can package security assistance support with other aid, not necessarily military assistance, and intelligence-related

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<sup>39</sup>Cahill Interview.

<sup>40</sup>Cahill Interview.

<sup>41</sup>For an in-depth discussion of the concerns many nations have regarding the U.S.-led global war on terror refer to: Rebecca Johnson and Micah Zenko, “All Dressed Up and No Place to Go: Why NATO Should Be on the Front Lines in the War on Terror” *Parameters* (Winter 2002), online article, URL: < <http://www.carlisle.army.mil/usawc/Parameters/02winter/johnson.pdf>>, accessed 5 May 2005.

assistance which is less likely to draw attention than basing or transferring modern platforms.

The United States can retain existing coalition partners and prevent their leaving the coalition by making it clear that it would cease security assistance to any coalition member that departs. This would provide a strong incentive for the current coalition partners to remain within the fold. Once they became aware of the benefits of U.S. security assistance programs, and the respect they garner from being members of the coalition against terror, nations would have a motivated self-interest not to lose these advantages. TPED adds to these benefits because it does not require a visible American presence on the ground, and the training of intelligence personnel to use the TPED should be transparent to the partner's domestic audience. The United States government needs to be aware, however, that once it provides the TPED through security assistance it is embarking on a mid-term relationship with the recipient coalition partner. If the United States fails to provide the TPED it promises through security assistance it will see the numbers of potential coalition partners dwindle. By including TPED within future coalition security assistance programs the United States helps to cement its leadership position within the coalition as it attracts new coalition partners who otherwise would remain outside the direct sphere of American influence.

### **Burden Sharing Within the Coalition**

Even with all of the resources that the United States dedicates to TPED, it cannot single-handedly build the intelligence needed to protect itself and win the war against terrorism entirely from within its own resources. To win the war against terrorism the United States needs to rely on its coalition partners to help, and one of the critical areas the United States can share its burden with its coalition allies is in the TPED of intelligence.<sup>42</sup> In the global war on terrorism there is now more reason than ever before to regard intelligence as an international good, and to thus organize and plan accordingly for an interoperable TPED network.<sup>43</sup>

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<sup>42</sup>John Soto, Raytheon Corporation Manager, Air Force Battle Management Programs, Alexandria, VA, telephone interview by the author, 31 January 2005.

<sup>43</sup>Michael Herman, *Intelligence Services in the Information Age* (London: Frank Cass, 2001), 231.

Burden sharing is an advantage in the global war on terror because it increases coalition reliance on common intelligence systems and the adoption of common TPED standards. Burden sharing within TPED can produce complementing effects as the coalition adopts common TPED procedures rather than their current independent and proprietary TPED. Burden sharing holds the potential to reduce the cost to each individual coalition partner, yet still produce the desired intelligence effects. In choosing to subsidize coalition partners the United States must ensure that it does not over burden its coalition partners by requiring them to pay a larger share of the costs than they can realistically afford. Thus, the amount subsidized by the United States will change on a case-by-case basis, but this subsidy and the acquisition of modern TPED systems should serve as an added incentive for neutral states to join the U.S.-led coalition.

As an example, during the first month of Operation Iraqi Freedom almost 1,801 coalition aircraft took part, but only 80 of these were dedicated to the intelligence mission and they were all American.<sup>44</sup> These intelligence assets flew approximately 1,000 sorties and collected over 3,200 hours of streaming video, 2,400 hours of signals intelligence, and 42,000 battlefield images.<sup>45</sup> The coalition in Iraq lacked an interoperable TPED procedure, however, and virtually all collection and processing was carried out by the United States. The largely unilateral intelligence effort within Operation Iraqi Freedom, and the strain it placed on U.S. assets, is precisely why the United States recognizes today that it needs help from its coalition allies. The United States cannot sustain such an effort over the entire globe, and so needs help in collecting and analyzing data in the global war on terror. To efficiently and effectively meet the intelligence requirements, the United States needs intelligence help in the global war on terror.<sup>46</sup> By providing the tools, including intelligence TPED, to enable coalition partners to share the burden in the global war on terrorism, the United States enhances its image as leader of the coalition.

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<sup>44</sup>For a comprehensive unclassified list see Walter J. Boyne, *Operation Iraqi Freedom: What Went Right, What Went Wrong and Why* (New York: Tom Doherty Associates, 2003).

<sup>45</sup>T. Michael Moseley, *Operation Iraqi Freedom – By the Numbers*, Online edition, U.S. Central Command Air Forces, Assessment and Analysis Division (30 April 2003), URL: <[http://www.globalsecurity.org/military/library/report/2003/uscentaf\\_oif\\_report\\_30apr2003.pdf](http://www.globalsecurity.org/military/library/report/2003/uscentaf_oif_report_30apr2003.pdf)> accessed 13 December 2004, 3.

<sup>46</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 15, URL: <<http://www.fas.org/irp/agency/nima/commission/article17.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 15.

## **Unity of Effort within the Coalition**

The divergence of national priorities within the coalition against terror is unavoidable as each nation reacts to domestic and international pressure.<sup>47</sup> The United States must use its leadership position to unify divergent partners and gain unity of effort amongst its coalition allies. TPED provides a link to support unity of effort across the coalition, which then allows the individual coalition members the flexibility to meet individual challenges while still contributing to the overall coalition's goals and objectives. Utilizing a common TPED process, provided through security assistance, can help lay the foundation for the United States to achieve unity of effort within the coalition.

Unity of effort is critical to successful intelligence efforts within the global war on terror. The importance of integrated, interoperable intelligence TPED processes to coalition success in meeting this goal cannot be overstated. To become truly interoperable, the coalition against terrorism must minimize the structural barriers of any kind, but especially along national boundaries, that impede the flow of data and analyzed intelligence. As an example, TPED systems must be designed to work on any type of electrical grid, be it 110-volt, 220-volt, or generators. In the global war on terrorism, no single nation holds all the relevant intelligence information. Without positive injections from other coalition partners it will be impossible to "connect the dots" and build actionable intelligence analysis.<sup>48</sup>

Unity of effort is critical to any coalition effort, but especially in the global war on terrorism, due to the enemy's ability to find and exploit gaps if they exist. Only by ensuring all coalition members are working toward common goals using common standards can these gaps be minimized. If the terrorists are able to identify gaps they are likely to use them to enable future terrorist attacks. A common TPED architecture is one way the United States can minimize the presence of gaps within the coalition, and thereby facilitate unity of effort, by providing a common intelligence foundation for all coalition partners to build upon. Including TPED within security assistance programs can help the United States to achieve unity of effort within the coalition in three critical

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<sup>47</sup>Cahill Interview.

<sup>48</sup>Cahill Interview.

ways: first, TPED can establish the framework needed for improved command decision-making within the coalition; second, TPED can help to establish the organizational structure necessary to enable unity of effort; and third, a common coalition TPED can establish a common intelligence configuration control architecture for the coalition fighting the global war on terror.

### **Coalition Command Decision Making**

Operational commanders can further efforts to gain unity of effort by understanding the various factors that influence a coalition's ability to coordinate forces.<sup>49</sup> TPED interoperability allows the coalition commander to coordinate his combined intelligence forces. Interoperable TPED supports the initial planning of operations and is particularly critical to conducting successful operations, especially as future coalition contingency operations against global terrorist groups are likely to involve forces from different nations.<sup>50</sup> Unity of effort through an interoperable TPED process eases the commander's burden in several ways. If all the coalition's forces have access to shared intelligence through a common TPED architecture, fewer liaison officers and translators are required to achieve a degree of intelligence interoperability. With the direct exchange of intelligence through an interoperable TPED system there is less chance for mistakes or misinterpretation of orders.<sup>51</sup>

Effective command of coalition forces enabled by access to common intelligence is a daunting proposition, but coalition TPED can play a major role in establishing it. Information superiority, or knowing more about an adversary who knows much less about you, is a key enabler for the partners in all military operations, including those against terrorism, as distributed operations at the tactical level provide the intelligence needed to make decisions at the operational and strategic levels.<sup>52</sup> A coalition's intelligence needs are in a constant state of flux, reflecting changing requirements, an adaptive adversary with a clandestine organization, and shifting domestic and

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<sup>49</sup>Terry J. Pudas, "Coalition Warfare: Preparing the U.S. Commander for the Future," in *Essays on Strategy XI* edited by John N. Petrie (Washington, D.C.: Government Printing Office, 1994), 121.

<sup>50</sup>Soto Interview.

<sup>51</sup>Cahill Interview.

<sup>52</sup>NIMA Commission Final Report, Chapter 12.

international currents. These strategic trends demand a coalition intelligence capability that can effectively collect on and assess the full spectrum of economic, political and military intelligence by becoming more responsive to meeting the commander's intelligence requirements.<sup>53</sup>

The intelligence departments and agencies of all coalition partners must maintain sufficient flexibility to respond rapidly and efficiently to the changing intelligence environment. They must accommodate significant international changes in political alliances, military threats, and opportunities of all sorts as well as accommodate the shortfalls of coalition partner's intelligence collection systems. The coalition cannot define the intelligence organizational structure and specific roles in a static, hierarchical way that narrowly focuses responsibilities and leads to an inability to meet the demands of its operational commanders and political leaders.<sup>54</sup> Effective coalition command and control depends on the intelligence inputs utilizing a common TPED process ensuring flexibility at every level. In an interoperable TPED environment, effective actionable intelligence is a critical enabler of rapid command responses during changing situations.<sup>55</sup>

Interoperable coalition TPED can mitigate some of the effects of bounded rationality, which traditionally inhibits intelligence analysis. Bounded rationality is a theory of human reasoning that directly affects effective command decision-making. The theory states that the capacity of the human mind for formulating and solving complex problems is small compared with the size of the problems that need to be solved.<sup>56</sup> Put simply, the problems for the commander in the global war on terror are simply too big for a single joint force commander (JFC) to solve by himself, and the intelligence issues involved in supporting the JFC are impossible for a single intelligence organization to meet. There are too many different kinds of knowledge that need to be applied and too many different decisions that need to be made too quickly to accomplish complex

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<sup>53</sup>Major Jeffrey R. Sgarlata, USAF, Instructor, Intelligence Sensor Weapons Instructor Course, USAF Weapons School, Nellis AFB, NV, telephone interview by the author, 11 February 2005.

<sup>54</sup>Sgarlata Interview.

<sup>55</sup>Gus E. Greene, *Distributed Collaborative Analysis: A New Approach for Intelligence Analysis* (Carlisle Barracks, PA: Army War College, 2001), 23.

<sup>56</sup>"Bounded Rationality," *Changing Minds.org*, URL: <[http://changingminds.org/explanations/theories/bounded\\_rationality.htm](http://changingminds.org/explanations/theories/bounded_rationality.htm)>, accessed 19 January 2005.

problem solving in a centralized manner.<sup>57</sup> In the global war on terror the expanded scope of the intelligence problem, the rapid growth in intelligence collection technology, the compression of the strategic and tactical information domains, and the demands by coalition partners for improved efficiency all argue that the coalition should adopt a common TPED process to be more distributed, networked, and collaborative. In other words current centralization of intelligence and linear analytic and distribution processes cannot achieve the efficiencies that are needed to satisfy both the unique needs of the entire coalition and the commander with appropriate fidelity and scope.<sup>58</sup> Only by organizing the various efforts into a common structure can all users from the operational to the strategic level receive the intelligence they require to make decisions or take action in the global war on terror.

### **Organizational Structure of Coalition TPED**

A critical step in gaining unity of effort within the coalition fighting the global war on terrorism is to enable an effective organizational structure. To facilitate the optimum organization of the coalition's intelligence assets a common TPED structure should be developed.<sup>59</sup> The coalition's TPED structure should be based on the commander's collection strategy and execution planning. It should relate all available intelligence assets to the coalition's intelligence requirements. The coalition's interoperable TPED will also facilitate discussion of collection asset shortfalls relative to the commander's intelligence requirements and will be used as a vehicle to justify a request for the allocation of additional national intelligence resources from coalition members.<sup>60</sup> In this way the commander should receive the actionable intelligence in the format he requires to make effective command choices in the global war on terror.

To facilitate the development of a coalition command intelligence structure, the United States already has a model it can base the coalition's organization on within its own military forces. The coalition against terrorism will need to copy some of the

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<sup>57</sup>“Cooperative Distributed Problem Solving,” *Multi-Agent Systems Lab*, URL: <<http://dis.cs.umass.edu/research/cdps/>>, accessed 19 January 2005.

<sup>58</sup>Greene, 11.

<sup>59</sup>Sgarlata Interview.

<sup>60</sup>Joint Chiefs of Staff, Joint Publication 2-01, *Joint and National Intelligence Support to Military Operations* (n.p., 7 October 2004), III-8. Cited hereafter as JCS, Joint Pub 2-01.

structure provided to the U.S. military by the Goldwater-Nichols legislation of 1986. Goldwater-Nichols created joint commands that control operations in the field through the Unified Command Plan. Each of the individual services (the Army, Navy, Air Force, and Marine Corps) organize, train, and equip their personnel and units to perform their assigned missions, but the Secretary of Defense assigns and attaches personnel and units to the joint combatant commander for employment.<sup>61</sup>

In the coalition against terror a parallel structure could be designed to deal with coalition TPED interoperability.<sup>62</sup> A coalition intelligence center, created and developed by the United States, would act as the overall command center for TPED procedures in the field, relying on each coalition partner to effectively and efficiently utilize its intelligence assets to support the command center's goals. It is important to note that this coalition intelligence center could utilize virtual reality technology to avoid the political implications of a physical intelligence center populated by foreign intelligence personnel in any coalition nation. In this way intelligence tasking would efficiently be tied to the coalition partner's ability and effectiveness to meet assigned tasks.<sup>63</sup> As the results of all intelligence activities would be available to each coalition partner equally, friction inherent in supplying different partners with different tasks could be overcome.

The coalition can maximize the effects of a distributed analytic structure by avoiding a hierarchical military structure. The coalition should instead rely on automated and collaborative TPED procedures that capitalize on Internet technologies.<sup>64</sup> At the same time, the network supports broader intelligence analysis at parallel and higher levels of command. The collaborative approach will better inter-relate analytic products with all coalition partners, thereby providing a broader context from which to base their intelligence.<sup>65</sup> Collaborative TPED enables each analytic node to remain apprised of the current intelligence assessments and to participate in future assessments.<sup>66</sup> The coalition's analysts thus work in near-real time on the resulting products to maximize

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<sup>61</sup>Department of Defense, Department of Defense Directive 5100.1, *Functions of the Department of Defense and Its Major Components* (Washington D.C.: Government Printing Office, 21 November 2003), 1-16.

<sup>62</sup>Cahill Interview.

<sup>63</sup>Soto Interview.

<sup>64</sup>Soto Interview.

<sup>65</sup>Cahill Interview.

<sup>66</sup>Soto Interview.

their analytic efforts by uniting the coalition's distributed nodes of analysis using collaborative TPED procedures.<sup>67</sup>

Such a collaborative intelligence TPED structure would have been invaluable during Operations Enduring Freedom and Iraqi Freedom. During Operation Iraqi Freedom, for example, the key factors affecting the ability of the coalition's intelligence assets to support rapid maneuvers included compressed engagement times, incompatible and inadequate intelligence systems, late intelligence planning, a lack of shared intelligence analysis tools, and service unfamiliarity with the other service and coalition partner TPED capabilities.<sup>68</sup> The collaborative coalition TPED structure described above would enhance the coalition's unity of effort to take advantage of the many good ideas that have surfaced regarding basic manning, training, and equipping of the coalition's intelligence force.<sup>69</sup> Proper functioning of coalition TPED procedures can result in intelligence analysis that adds context and meaning to the volumes of raw intelligence and information collected by the coalition and will be critical to combating terrorism around the globe.

In essence, the effective utilization of coalition intelligence TPED through security assistance programs can act as an enabler to further coalition interoperability. This TPED interoperability then acts as an enabler for the transmission of intelligence, both horizontally and vertically, through all levels of the coalition and all levels of command. When all of the coalition partners utilize the same intelligence foundation for the global war on terror, the coalition will gain a better capability to synchronize decisions and control actions across all spectrums of conflict. The final link in the chain of coalition unity of effort in intelligence sharing is commonality and interoperability of equipment through configuration control.

### **Standardized Configuration Control**

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<sup>67</sup>Greene, 10.

<sup>68</sup>Carl M. Bradley, *Intelligence, Surveillance, and Reconnaissance in Support of Operation Iraqi Freedom* (Newport, RI: Naval War College, 9 February 2004), iv.

<sup>69</sup>Valerie A. Ormond, *The Role of Intelligence Analysis in the War on Terrorism* (Carlisle Barracks, PA: Army War College, 2002), 1.

If the coalition in the global war on terror established a configuration control regime for UAV TPED they would enable the focused dissemination of actionable intelligence analysis to commanders to make better use of their finite resources.<sup>70</sup> By relying on a common TPED architecture and adopting technical standards that apply to future TPED upgrades within the coalition against terrorism, configuration control is virtually assured throughout the UAV system's useful lifespan. Under the proposed TPED configuration control changes, the modifications and upgrades to the existing TPED procedures would be controlled through a single coalition configuration management authority. Allied and coalition partners who purchased U.S. UAVs would not make changes to the TPED procedures without first utilizing a formal process to thoroughly test the proposed upgrade or addition to ensure overall coalition TPED interoperability with the existing system is not threatened.<sup>71</sup>

The other option available to maintain TPED configuration control within the coalition would be to adopt NATO's configuration control regime. In NATO each member state can modify the intelligence TPED processes it desires, as long as it meets the standards defined in the Alliance's NATO Standardization Agreements (STANAGs).<sup>72</sup> These NATO standards ensure that the outputs of all members' TPED systems are interoperable with each other.<sup>73</sup> Within the coalition against terrorism, however, this type of structure faces several critical issues. The coalition's TPED architecture must, at a minimum, include all members of the coalition to enable full TPED interoperability. If each coalition partner designs their own TPED, those coalition partners without deep financial resources will be unable to design as robust a TPED process as their richer coalition partners. This is critical in the coalition against terror because some of the most important partners are those found in the least wealthy areas of

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<sup>70</sup>Soto Interview.

<sup>71</sup>Major Matt J. Biewer, Chief, Targeting Intelligence Integration and Modernization Branch, Air Force Command and Control and Intelligence, Surveillance and Reconnaissance Center, Langley AFB, VA, telephone interview by author, 31 January 2005.

<sup>72</sup>Unclassified NATO STANAGs that apply directly to the alliance's intelligence TPED process include STANAG 4545: NATO Secondary Imager Format, STANAG 4559: NATO Standard Imagery Library Interface, STANAG 4575: NATO Advanced Data Storage Interface, STANAG 7023: NATO Primary Image Format, and STANAG 7024: Air Reconnaissance Tape Recorder Standards. These STANAGs can be viewed at: <<http://www.nato.int/docu/standard.htm>>.

<sup>73</sup>Joseph Sumilas, *Intelligence in NATO: A New Paradigm* (Carlisle Barracks, PA: Army War College, 2000), 12.

the world. As the coalition's interoperable TPED architecture proves its value over time, an even greater demand for its capabilities will grow.<sup>74</sup>

The Cold War's hierarchical command chain does not provide enough flexibility to achieve unity of effort in the coalition fighting the global war on terrorism because it does not enable effective use of all the coalition partner's strengths. Unlike the NATO alliance, whose membership remained stable over decades, the coalition against terrorism is likely to add and lose members as national interests change over time. The transitory nature of coalitions, then, cannot allow only one partner to develop a niche capability as was done in the NATO alliance, primarily because that partner may leave the coalition at any future time. The loss of a coalition member would thus open a gap in the coalition's ability to effectively and efficiently fight terror if the coalition depended on the member's individual niche capabilities. The coalition must mitigate the effects of terrorism's time and space compression by expanding the global TPED environment and achieve synergy by bringing these distributed nodes of analysis together into a virtual network of analytic intelligence power.<sup>75</sup>

As the volume of collected data and analyzed intelligence increases, it will become ever more crucial to disseminate it in a timely and unimpeded manner to appropriate customers. If each coalition partner designed their own TPED procedures, the NATO model of TPED configuration control would likely break down. The poorest, yet possibly most critical, coalition partner's TPED designs could fail as the increased volume of information collected and processed by the full coalition overwhelms their analytic capabilities due to limitations in equipment and a lack of trained personnel. Within NATO changes to the accepted baseline standards require the approval of all member states. In the coalition against terrorism such a stipulation will hamper configuration control due to the time required for such approvals and the fluid nature of coalition membership. Because of the differences in the structure of NATO and the coalition against terrorism, stricter coalition TPED configuration control becomes a necessity.

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<sup>74</sup>Biewer Interview.

<sup>75</sup>Greene, 10.

Configuration control within the coalition's TPED processes will guarantee continued interoperability of intelligence systems across the coalition, and the simplest way of gaining this capability is by utilizing commercial off-the-shelf systems and processes. The National Imagery and Mapping Agency (NIMA) Commission, in its study of the problems confronting American intelligence and its TPED, stressed that a critical step in building interoperable procedures lay in using the benefits of commercial, rather than government, technology and configuration control standards. The NIMA Commission predicted that without standards that interface with the commercial world, it would be very difficult to accommodate future coalition TPED interoperability.<sup>76</sup> To avoid this problem when designing the coalition against terrorism's TPED procedures, the Commission suggested that the United States should make the maximum effective use of commercial hardware and software.<sup>77</sup> The NIMA Commission was also very careful to insure that future TPED configuration controls include both the systems themselves and the common measures that enable those systems to function properly.

The rationale for utilizing commercial systems for the coalition's TPED is obvious: these systems exist; they already can perform the required tasks; the United States government controls the export licenses; and they evolve quickly and can be upgraded cheaply as the marketplace expands.<sup>78</sup> Additionally, as the development and maintenance costs are amortized over many customers, commercial products designed for consumer use are usually less expensive to acquire. These benefits to commercial TPED products do come at some cost as the priorities of the commercial marketplace differ from those of military customers, especially in the areas of product testing and durability. A commercial company is often willing to put an imperfect information technology product on the shelf and provide improvements over time rather than ensure its security or stability due to fierce competition in the marketplace.

Buying a commercial TPED product would allow the coalition to utilize the commercial company's research and development costs. Hardware and software

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<sup>76</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 12, URL: < <http://www.fas.org/irp/agency/nima/commission/article14.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 12.

<sup>77</sup>NIMA Commission Final Report, Chapter 12.

<sup>78</sup>Biewer Interview.

developed by Sun Microsystems, which is already in use in one section of the Department of Defense (DOD), is an example of such a commercial solution.<sup>79</sup> This potential TPED package allows client systems to access multiple security domains and servers from a single workstation as would be necessary in a coalition TPED environment where each coalition partner populated its intelligence database. Using a commercial system such as this one by Sun could allow coalition intelligence analysts to utilize all of the individual coalition intelligence databases from a single workstation. Commercial solutions can also save critical time in TPED development because in the commercial system someone has already devised workable TPED procedures; there is no need or incentive to reinvent what is already available. By utilizing commercially available TPED procedures and systems, the United States and its coalition partners could operate more easily with each other, with other commercial TPED developers, and with new coalition partners as they join the existing TPED procedures.<sup>80</sup> A commercially derived TPED process would allow the coalition to build upon a distributed database that integrates all collected intelligence data and can expand to encompass all coalition partners equally.<sup>81</sup>

### **Supporting the Domestic Defense Industrial Base**

Including TPED within security assistance programs for coalition partners in the global war on terror has potential domestic benefits for the United States

### **Revenues for U.S. Domestic Defense Industrial Base**

Including TPED in security assistance sales to coalition allies in the global war on terror has a number of operational benefits for the United States, such as fostering coalition intelligence interoperability. In addition, UAV TPED sales would have positive

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<sup>79</sup>Ken Yee, "DoDIIS Trusted Workstation," briefing presented at the AFC2ISRC Warfighter Conference, Langley AFB, VA on 15 November 2004.

<sup>80</sup>NIMA Commission Final Report, Chapter 12.

<sup>81</sup>The Independent Commission on the National Imagery and Mapping Agency, *Final Report of the Independent Commission on the National Imagery and Mapping Agency*, December 2000, Chapter 14, URL: < <http://www.fas.org/irp/agency/nima/commission/article16.htm>>, accessed 18 December 2004. Cited hereafter as NIMA Commission Final Report, Chapter 14.

economic benefits domestically by generating revenues for defense firms.<sup>82</sup> Beyond increasing sales and generating revenues, such sales would tie the coalition partners into future upgrades and replacement purchases. Integrating coalition interoperability in the design, procurement, and acquisition phase of TPED development, in conjunction with commercial manufacturing supplies, will help maintain critical technological skills and give the American industrial base significant advantages over its foreign competitors.

### **Protect the Defense Industrial Base**

The preservation of the U.S. defense industrial base is critical to American security. According to one journalist “foreign arms sales provide jobs, help maintain the industrial base and in a Machiavellian world give us power and influence in international relations.”<sup>83</sup> The revenues from security assistance sales, provided that industrial effects are not too punitive, could even be used to build the next generation of TPED for future UAV systems. These revenues can be augmented by another form of burden sharing whereby coalition partners provide assistance with the research and development costs for future TPED systems in a manner similar to current allied research and development assistance in the Joint Strike Fighter program.<sup>84</sup>

Former Secretary of Defense William Perry outlined several initiatives that could be utilized in designing a coalition TPED capability while maintaining America’s defense industrial base with significant advantages.<sup>85</sup> He argued that the United States needs to maintain its technology base by buying unique items even if they were not critical to U.S. efforts, but were required by our allies or coalition partners. These efforts focused on dual-use items that had a commercial market to sustain them in the absence of military purchases, especially if the United States could interest coalition partners in such items as part of TPED-related security assistance sales. Perhaps the most important of Perry’s initiatives, however, was that the U.S. government should take an active role in

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<sup>82</sup>Cahill Interview.

<sup>83</sup>Mark Thompson, “Going Up Up in Arms,” *Time Magazine* (Issue 144, no 24, 12 December 1994), 3.

<sup>84</sup>Cynthia R. Cook and others, *Assembling and Supporting the Joint Strike Fighter in the UK: Issues and Costs* (Santa Monica, CA: RAND, 2003), 4-7.

<sup>85</sup>William J. Perry, “U.S. Military Acquisition Policy,” *Comparative Strategy* (Volume 13, January-March 1994), 20-24.

promoting U.S. military technology abroad.<sup>86</sup> All of these initiatives are directly applicable to American efforts to secure an interoperable coalition TPED capability. In fact, if the United States could include TPED in its security assistance UAV sales it would increase the revenues for military suppliers as well as help to protect this fledgling industry from foreign competitors. Coalition allies, knowing they would gain access to TPED technology, would be more likely to purchase UAVs made in the United States.

### **Summary of the Benefits of Including TPED within Security Assistance Programs**

To reap the full potential from security assistance programs that include intelligence collection platforms like UAVs, the United States needs to provide the back-end TPED process to its coalition partners if it seeks to maximize their potential intelligence support in the global war on terror. This would cement the United States' leadership within the coalition, support an intelligence unity of effort throughout the coalition, and provide benefits for the domestic defense industrial base. However, as Edward Luttwak states, "in war nothing can be had for nothing."<sup>87</sup> If the United States decided to sponsor a coalition TPED, it would gain significant benefits in the global war against terrorism. These potential benefits, however, must be weighed against the risks associated with providing such a TPED process.

### **Costs of Including TPED Within Security Assistance Programs**

TPED is not a panacea. Selling TPED architectures comes with associated risks. The arguments against including TPED in future UAV security assistance sales are, in order of importance: information security, operational security as the potential threat faced by these forces increases, and reducing the resources available to American fielded military forces. Information security is probably the single most difficult impediment for achieving a truly distributed coalition collaborative analytic TPED environment because each coalition partner needs to prevent "unauthorized persons from having access to

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<sup>86</sup>Perry, 22-24.

<sup>87</sup>Edward N. Luttwak, *Strategy: The Logic of War and Peace* (Cambridge, MA: The Belknap Press of Harvard University Press, 2003), 6.

official information that is safeguarded in the interests of national security.”<sup>88</sup> To a lesser extent, the decision to expand the TPED process to coalition partners might undermine American fielded military forces as they are forced to cover a percentage of the system’s cost and have to train and supply the coalition partners. Money spent supplying the coalition partners with coalition TPED would, at least partially, be expected to originate within existing tight military budgets. At the same time, the United States could not expect its coalition partners to utilize effectively the TPED process provided through security assistance unless the United States provided training and logistical support. Unfortunately, the time and manpower needed to provide such support comes at a cost to the operational capabilities of the military services. Similarly, the United States could actually increase the threat its military confronts today if the decision is made to provide coalition partners access to the current TPED process used by the United States.

### **Information Security**

The distributed collaborative coalition intelligence environment creates a dilemma in which the risks and benefits associated with an open intelligence environment must be balanced.<sup>89</sup> The intelligence community in the United States further complicates this security issue by its propensity to over-classify information.<sup>90</sup> This over-classification runs counter to the very concept of an interoperable coalition TPED environment.<sup>91</sup> Compartmentalization and over-classification are impediments to the free flow of information an interoperable TPED requires.<sup>92</sup> The coalition’s TPED developers must build mechanisms into the architecture that facilitate the free flow of information rather than impede it. The paradox of the global war on terrorism is that those countries where the United States most needs cultural insights are the regions with the highest density of terrorist operators, which tends to caution against the flow of information. This situation raises three important questions the United States government must consider when

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<sup>88</sup> *Department of Defense Dictionary of Military Terms*, online ed., as amended through 30 November 2004, under the term “security,” URL: < <http://www.dtic.mil/doctrine/>>, accessed on 7 January 2005.

<sup>89</sup> Biewer Interview.

<sup>90</sup> Mark M. Lowenthal, *Intelligence, From Secrets to Policy* (Washington, D.C.: Congressional Quarterly Press, 2003), 10.

<sup>91</sup> Bruce D. Berkowitz and Allan E. Goodman, *Best Truth: Intelligence in the Information Age* (New Haven, CT: Yale University Press, 2000), 151.

<sup>92</sup> Sgarlata Interview.

deciding whether or not to provide TPED to its coalition partners. First, should the United States provide coalition TPED interoperability knowing that some compromises are likely to occur? Second, should the United States invest in personnel to watch the TPED system operate to minimize the impact of such leaks? Third, can the United States successfully prosecute the global war on terrorism if its intelligence TPED sources and methods are exposed? The United States needs to understand that coalition TPED, while not without risk, carries such potential that it can assume these risks. The concept of distributed coalition collaborative analysis “will realize its promise when we do not lose sight of what it is supposed to do for us and learn to use it to our best advantage.”<sup>93</sup>

The United States already has stronger partnerships and intelligence sharing agreements with trusted allies such as the United Kingdom (UK).<sup>94</sup> The United States has a long history of releasing different levels of intelligence information to different countries at different times. The sheer diversity of capabilities, political reliability, and the varied goals of coalition partners means that the previous procedures used to identify the countries that would gain access to intelligence information are archaic. Even when the United States has developed rules for intelligence sharing, they have not always been followed. For example, when the United States operated as the leading coalition partner in support of the United Nations in Somalia in 1993, the protection of classified intelligence released outside of United States channels was almost non-existent.<sup>95</sup> This lax attitude concerning security by its coalition partners had a negative impact on operations during that humanitarian crisis.<sup>96</sup> In a coalition TPED environment supporting the global war on terror the United States must decide how best to share intelligence with coalition partners while still retaining the right to determine what information is releasable. Security will always remain a paramount constraint and security must remain the primary challenge to implementing a coalition-wide interoperable TPED.

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<sup>93</sup>Paige, “The Rapid Expansion of Intelink.”

<sup>94</sup>Robin Harris, “The State of the Special Relationship,” Policy Review (Washington, D.C.: Hoover Institution, June 2002), URL: < <http://www.policyreview.org/JUN02/harris.html>>, accessed on 05 March 2005.

<sup>95</sup>U.S. Congress, House, Select Committee on Intelligence, *Intelligence Authorization Act for Fiscal Year 1997*, 104<sup>th</sup> Congress, 2<sup>nd</sup> session, 1996, House Report 104-578, 34-35. Cited hereafter as U.S. Congress, HSCI, *Intelligence Authorization Act for 1997*.

<sup>96</sup>U.S. Congress, HSCI, *Intelligence Authorization Act for 1997*, 35.

When the coalition was first established to deal with terrorist groups associated with Al Qa'ida in the wake of the 11 September attacks, the national goals of the United States and most of its coalition partners coincided. As the coalition's mission evolved, and its scope was extended to include the invasion of Iraq, the national interests of the United States and a substantial number of its coalition partners began to diverge. This divergence of opinion highlights how the fragile nature of coalitions can have significant security implications.<sup>97</sup> Not all the coalition nations will agree with the direction of the U.S.-led coalition and its intelligence priorities while even those coalition partners that share intelligence may approach the same material differently and thus draw significantly different conclusions. Diplomatic agreements at the international level do not necessarily mean that all the elements of a state's bureaucracy agree with the leadership's decisions. These bureaucracies may have agendas of their own that work against the national leadership's stated objectives. Additionally, some coalition partner's intelligence agencies may have ties with or sympathizers of global terrorist cells and therefore would be reluctant to conduct intelligence activities against them. Operation Enduring Freedom provides an example of this tension within a coalition. While President Pervez Musharraf quickly supported the U.S.-led coalition against the Taliban regime in Afghanistan, factions within Pakistan's Inter Services Intelligence (ISI) were not as supportive, and were even hostile, toward its President's decision.<sup>98</sup> The ISI had been the Taliban's primary external ally since the movement's inception and did not want to lose such an important client.<sup>99</sup> Moreover, the number of coalition partners will change over time as some decide that operations may not be in their national interest. This changing nature of the coalition's membership is a tremendous threat to intelligence security as partners who are provided access to the coalition's intelligence TPED later leave the coalition, but their knowledge and understanding of the coalition's intelligence processes remains.<sup>100</sup>

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<sup>97</sup>Biewer Interview.

<sup>98</sup>Rahul Bedi, "Vital Intelligence on the Taliban may rest with its prime sponsor – Pakistan's ISI," *Jane's.com* (1 October 2001), URL: < [http://www.janes.com/security/international\\_security/news/misc/janes011001\\_1\\_n.shtml](http://www.janes.com/security/international_security/news/misc/janes011001_1_n.shtml)>, accessed on 5 March 2005.

<sup>99</sup>For an in-depth analysis of the links between the Taliban and Pakistan's ISI, refer to Steve Coll, *Ghost Wars: The Secret History of the CIA, Afghanistan, and bin Laden, from the Soviet Invasion to September 10, 2001*, (New York: Penguin Press, 2004).

<sup>100</sup>Sumilas, 7.

What makes the security threat to the United States in a coalition TPED environment especially threatening is the nature of operations against terrorism. Effective operations against terrorism require specific intelligence derived from both covert human as well as highly technical collection activities. Any compromise of these activities may lead to excessive reliance on technical collection to minimize and mitigate risk or the complete loss of the information and the source.<sup>101</sup> Worse still, the compromise of the coalition's intelligence capabilities may affect the success of operations, discussed below, as well as enable future terrorist attacks. Therefore, the coalition intelligence community must classify intelligence at the proper level to limit the amount of damage any compromise could cause and to protect the source and the national interests of the coalition partners. The obvious drawback of over-classifying the intelligence data is that this process limits its availability and undermines the rationale for an interoperable and integrated TPED process in the first place.<sup>102</sup> To minimize this impact, the United States should include a 'cut-line' system that provides insights into the intelligence data and methods, a lower threat in case of a leak, while protecting the sources which are the most valuable piece of the intelligence puzzle. The United States currently utilizes a variant of this type of TPED architecture in its interagency intelligence environment. The interagency intelligence TPED allows the DOD to share intelligence information with law enforcement agencies, and vice-versa, without revealing the sources of the information.<sup>103</sup>

Operation Iraqi Freedom sparked a new level of coalition TPED intelligence sharing in the Combined Air and Space Operations Center (CAOC).<sup>104</sup> High-level intelligence distribution in the CAOC was based on a temporary exception to policy. The intelligence exception during Operation Iraqi Freedom provided a means of sharing operational intelligence with coalition partners while ensuring that some of it was protected under the traditional intelligence classification system.<sup>105</sup> The U.S. military is now pursuing policy-compliant solutions for future coalition TPED, while at the same

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<sup>101</sup>Sgarlata Interview.

<sup>102</sup>Greene, 2.

<sup>103</sup>Robert D. Steele, *The New Craft of Intelligence: Achieving Asymmetric Advantage in the Face of Nontraditional Threats* (Carlisle Barracks, PA: U.S. Army War College, February 2002), 25-33.

<sup>104</sup>Biewer Interview.

<sup>105</sup>Biewer Interview.

time pressing for relief to the current policies to enable a broader range of technical solutions to improve coalition intelligence sharing today. Secretary Rumsfeld has identified the need to improve coalition intelligence security as one of his ten core issues that requires immediate solution to address urgent combatant commander requirements.<sup>106</sup>

### **Operational Security**

Including TPED in future security assistance sales to coalition partners could pose a threat to U.S. fielded forces throughout the globe by threatening the U.S. technological edge and increasing the likelihood that U.S. forces may fight against military equipment provided via security assistance in the future. The current TPED process utilized by the United States is based on significant technological advantages the United States has developed through investment in research, development, and implementation. Coalition allies could conceivably use the TPED technology provided by the United States to jumpstart their own military industrial complexes, allowing them to negate and compete with current American TPED technological advantages in the global arms market. Similarly, national priorities and goals, as well as types of government, change over time. By providing TPED to potential future enemies, the United States may actually increase the long-term danger to its military forces.

### **Surrender of the Technological Edge**

Superior technology and processes of the United States played a major role in the coalition's successes during Operations Enduring Freedom and Iraqi Freedom. On the surface, sharing such technology with coalition partners makes sense for any number of reasons. Future actions against clandestine terrorist cells operating globally will rely heavily on technology, including intelligence TPED, to conduct timely and successful operations.<sup>107</sup> An integrated TPED process, when combined with training and doctrine,

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<sup>106</sup>John Ferris, "A New American Way of War? C4ISR, Intelligence and Information Operations in Operation 'Iraqi Freedom': A Provisional Assessment" *Intelligence and National Security* Volume 18 Number 4 (December 2003), 158-161.

<sup>107</sup>Biewer Interview.

will improve span of control, unify collection and processing efforts, and speed the pace of operations by enabling global economies of scale against the terrorist adversary.

Technology transfer through security assistance programs is not without potential risks. Although the Clinton Administration increased emphasis on technology transfer, it did so understanding both the benefits and the risks: “The goal is to enable [the United States] to embrace globalization, while at the same time, protect our national security and prevent our technological advances from falling into the hands of potential adversaries. We realize that international cooperation increases the potential security risks involved in the transfer of militarily significant technology.”<sup>108</sup> The Administration recognized that technology transfer increased security risks but these were balanced by the stable NATO alliance and the capabilities of its member states.

In the coalition against terrorism, however, where many of the coalition partners have long-term interests that are at odds with many of the goals of the United States, the risk attendant with technology transfer has increased dramatically. For example, Israel has repeatedly been accused of selling technology transferred by the United States through security assistance without first gaining the required permissions from the United States.<sup>109</sup> Increasing amounts of evidence suggest that Israel has transferred Patriot missile and airborne early warning radar technology to China, a potential United States adversary.<sup>110</sup> Chinese access to such advanced American military technology allows China to shorten its research and development cycles when building similar systems or designing counters to the systems designed in the United States. When even long-term allies such as Israel are willing to sell technology gained through security assistance from the United States to potential American adversaries, the risks of technology transfer within the coalition against terrorism may outweigh the potential benefits of sharing TPED technology.

### **Threat of Fighting Against U.S. Systems in Future Conflict**

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<sup>108</sup>Jacques S. Gansler, “Technology, Future Warfare, and Transatlantic Cooperation,” Presented to the Future NATO Workshop, Norfolk, VA, 1998, 1.

<sup>109</sup>Clyde R. Mark. “Israeli-United States Relations,” *CRS Issue Brief for Congress* (5 April 2002), online article, URL: < <http://www.fas.org/asmp/resources/govern/crs-IB82008.pdf>>, accessed 13 January 2005, 9-10.

<sup>110</sup>Mark, “Israeli-United States Relations,” 10.

There is an obvious threat to the United States whenever it decides to export military equipment under the security assistance program: the future is unpredictable and exported weapons sold today may be used against the United States in the future. This threat has two dimensions. In the first, a potential partner turned enemy will use the weapons acquired under security assistance against the United States. In the second, a potential partner turned enemy takes advantage of its understanding of the gaps in American TPED systems.<sup>111</sup> In the case of both threats, however, “the iron law of coalitions is already at work: formed to resist enemies, they do not long outlast them.”<sup>112</sup>

Critics of security assistance in the United States argue that the U.S. should not sell or provide its best equipment for fear that the transferred equipment will be turned against it in a future conflict.<sup>113</sup> The military equipment may be used against the United States directly by the party that received the security assistance, as when the United States attempted the hostage rescue mission to Tehran in 1980.<sup>114</sup> The second case occurs when a potential enemy captures security assistance materiel. For example, Iraq captured HAWK missiles from Kuwait in 1990 and later attempted to utilize them, among other captured materiel, against U.S. forces.<sup>115</sup>

Fighting against an adversary intimately familiar with intelligence TPED systems may not seem as lethal as fighting against our own equipment. The second and third order effects of adversary-controlled TPED, however, could in fact be more dangerous for a number of reasons. Intelligence TPED in the wrong hands could be used by terrorist cells or those sympathetic to them could be used to subvert the best efforts of the coalition against them. The threat increases when terrorists gain a greater understanding of the coalition’s intelligence capabilities and structure and would be even more devastating than actually having to fight against American-style TPED.<sup>116</sup> If terrorists, or

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<sup>111</sup>Cahill Interview.

<sup>112</sup>Luttwak, 83. In the global war on terrorism, however, the United States and its coalition partners have noted that the current struggle is likely to be “generational,” in which case the threat of this second case is minimized.

<sup>113</sup>Robert Mandel, “Exploding Myths About Global Arms Transfers,” *The Journal of Conflict Studies* (Vol. XVIII No. 2, Fall 1998), URL: < <http://www.lib.unb.ca/Texts/JCS/bin/get.cgi?directory=FALL98/articles/&filename=Mandel.htm>>, accessed 13 January 2005.

<sup>114</sup>Richard A. Radvanyi, *Operation Eagle Claw: Lessons Learned* (Quantico, VA: United States Marine Corps Command and Staff College, 2002), 3.

<sup>115</sup>Beard, 16.

<sup>116</sup>Sgarlata Interview.

future adversaries, are able to identify the strengths and weaknesses of the coalition's intelligence TPED, they will be able to exploit that knowledge to take advantage of 'blind spots' in the coalition's intelligence structure.<sup>117</sup> If the coalition were unable to maintain the security of their intelligence TPED the terrorists would gain a major victory. The export of TPED through security assistance increases the possibility of such an occurrence.

The consequences of enemy penetration into a U.S.-controlled TPED architecture can be understood by examining the outcome of American special operations forces operating covertly in Laos and Cambodia during the Vietnam War. Despite severe restrictions that covered who was allowed access to information regarding current operations, the North Vietnamese utilized spies and other agents to gain insight into American special operations tactics, techniques, procedures, and upcoming operations.<sup>118</sup> These spies ran the entire gamut, from a Colonel in the Prime Minister's office to cleaning personnel in the special operations camps, but they all shared a common focus: derive as much information as possible concerning the weaknesses in American field operations. The North Vietnamese spy operations were extremely successful, and effectively curtailed American surveillance of the primary North Vietnamese insertion routes as a result of the intelligence information they were able to pass back to their handlers.<sup>119</sup> In the war on terror, a spy inserted within the coalition's interoperable TPED process would gain invaluable insight into ongoing and future coalition operations, providing the terrorists an unprecedented advantage in the global war on terror.

### **Impact on Resources for Fielded Military Forces**

Including TPED within coalition security assistance programs might reduce resources available to the fielded military forces of the United States. Many, if not most, of the potential coalition partners will require varying levels of financial assistance in order to field an interoperable coalition TPED process. The money to pay for these systems is likely to be taken, at least in some part, from existing military budgets.

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<sup>117</sup>Cahill Interview.

<sup>118</sup>Richard H. Shultz, Jr., *The Secret War Against Hanoi* (New York: Harper Collins Publishing, 1999), 227-231.

<sup>119</sup>Shultz, 227.

Likewise, the United States cannot expect its coalition allies to use their new TPED process without significant training and logistical support. This training and logistical support has the potential to undermine the ability of the military services to meet their current global requirements.

### **Financial Costs**

There is an inherent financial cost for the United States associated with achieving true coalition TPED interoperability. The United States cannot support coalition interoperability for TPED without allies and coalition partners paying their fair share, but this fair share will differ from coalition partner to coalition partner based on their ability to fund purchases.<sup>120</sup> On the surface this issue is related to those associated with burden sharing. The examples of two key United States coalition partners in the global war on terrorism, the UK and Pakistan, highlight the difference between burden sharing and the ability of coalition partners to pay TPED costs.

According to the Central Intelligence Agency, the UK's gross domestic product purchasing power parity in 2004 was \$1.666 trillion whereas Pakistan's gross domestic product purchasing power parity is \$318 billion.<sup>121</sup> UK military expenditures for that year totaled approximately \$42.8 billion whereas Pakistan's military expenditures were in the range of \$2.7 billion.<sup>122</sup> If the United States wants an equal burden share in the collection and analyzing of intelligence in support of the global war on terror, the United States will need to heavily subsidize the Pakistani portion of the TPED environment. In more general terms, if the United States seeks to provide all its coalition partners with equal access to the coalition's intelligence TPED architecture, then it will either have to: a) heavily subsidize a number of critical host-nation shortfalls; b) provide only those TPED capabilities suitable to the skills and resources of each coalition partner on a case-by-case basis; or, c) limit security assistance TPED support only to enable those intelligence systems, such as UAVs, received by each separate coalition partner.

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<sup>120</sup>Soto Interview.

<sup>121</sup>Central Intelligence Agency, *The World Factbook 2004* (1 January 2004), URL: <<http://www.cia.gov/cia/publications/factbook/geos/pk.html>>, accessed on 24 January 2005.

<sup>122</sup>Central Intelligence Agency, *The World Factbook 2004*.

Unfortunately, other nations in the coalition against terrorism simply do not have the financial resources to maintain the depth and scale of American TPED expenditures.<sup>123</sup> Most of the coalition and allied partners have trouble maintaining the platforms, much less their own dated TPED architecture, while the United States continues to push them to invest in the next generation of capability. Unless the United States is willing to fund a disproportionately large portion of the bill for a future coalition interoperable TPED environment, the global capability will never reach maturity.<sup>124</sup> Are the financial costs of funding the coalition's intelligence TPED better spent in another area? Just as a chain is only as strong as its weakest link, the coalition's TPED used against terrorism will only be as strong as its weakest intelligence capability.<sup>125</sup>

### **Training and Logistics Impact**

Training and logistics support will become a topic for concern for the United States as potential buyers and users range considerably in their ability to use the TPED system and integrate their TPED equipment into their current architecture.<sup>126</sup> Simply possessing interoperable equipment does not mean the coalition partner will be able to use advanced TPED equipment and procedures without significant investment in training and support. This scenario is analogous to the sale of F-15 fighter aircraft to Saudi Arabia, begun in 1993. The F-15 flown by Saudi Arabia is fully interoperable with American F-15s, but the Saudis, due to deficiencies in training and maintenance, are considered barely flight competent in the platform.<sup>127</sup> While the United States can consider the F-15 sale a security assistance program success, the sale did not lead to the ability of U.S. forces to operate effectively with the Saudis in a multinational environment.<sup>128</sup>

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<sup>123</sup>Soto Interview.

<sup>124</sup>Cahill Interview.

<sup>125</sup>Thomas J. Hains, *The Widening Gap of Interoperability Between US and Coalition/Allied Communications Systems* (Newport, RI: Naval War College, 13 June 1997), 7-8.

<sup>126</sup>Sidari Interview.

<sup>127</sup>Alfred B. Prados, "Saudi Arabia: Current Issues and U.S. Relations," *Congressional Research Service* (Washington, D.C.: Government Printing Office, 6 March 2002), 6-8.

<sup>128</sup>Anthony H. Cordesman, *Saudi Arabia Enters the 21<sup>st</sup> Century: The Military and Internal Security Dimension* (Washington, D.C.: Center for Strategic and International Studies, 30 October 2002), 14-17.

Furthermore, some coalition partners will require additional training when modifications or upgrades are made to an existing TPED architecture.<sup>129</sup> Within the United States intelligence community it has become common practice for the military to take delivery of TPED upgrades or even new systems without the training and logistic support required to sustain the systems. DOD agencies and services are willing to accept training and logistics support risks as the benefits of the new TPED capabilities outweigh the cost associated with not receiving complete training. This willingness to accept risk is based on confidence in the skills their personnel already possess. The learning curve for end-users in some coalition states is likely to be much steeper, driving up the risks and consequences of errors. In addition, the time between taking delivery of new or upgraded equipment and its effective use may be prohibitively long. In these cases the United States must either provide additional training on the TPED architecture or accept the risks involved require developing and implementing a coalition interoperable TPED architecture may enlist the United States to provide a lifetime of training and logistics support for its coalition partners at excessive cost, with few guarantees of receiving a commensurate return for the investment.

### **Summary of the Costs of Including TPED within Security Assistance Programs**

The United States thus faces a difficult choice with regard to its decision concerning the provision of TPED to coalition partners in the global war on terrorism. To reap the full potential from security assistance programs that include intelligence collection platforms, like UAVs, the United States needs to include the back-end TPED process to its coalition partners, but this increased effectiveness comes with costs. Those costs include the potential information security threat, a possible negative impact on the effectiveness of American fielded military forces, and a potential increase in the threat faced by those same forces. When making its decision regarding the inclusion of TPED in security assistance sales, the United States needs to ascertain if the benefits of such a decision outweigh the costs.

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<sup>129</sup>Sidari Interview.

## **Conclusions**

This chapter has reviewed the critical benefits and risks that can be expected if the United States provides coalition partners an interoperable intelligence TPED process. The benefits of including TPED in future sales hold the promise of dramatically increasing the coalition's effectiveness and efficiency in fighting the global war on terrorism. Including TPED in future security assistance sales can help cement American leadership of the coalition by expanding its access and influence while reducing its forward presence, increasing the incentive for otherwise neutral nations to join the coalition; and by burden sharing the effort and cost associated with defeating global terrorism across the coalition. The United States can also insure unity of effort across the coalition utilizing TPED within security assistance by helping to establish the framework needed for improved coalition command decision making, creating an organizational structure to enable unity of effort, and establishing a common intelligence configuration control architecture for the coalition. Less critical, but still important, are the benefits the United States could derive from including TPED in security assistance programs are the support such sales could provide for the domestic defense industrial base by way of increasing revenues for defense contractors while also protecting critical defense technologies from foreign encroachment.

These benefits do not come without a cost for the United States. The risk associated with information security represents the greatest potential impediment to successful security assistance transfers of TPED technology. The primary risk associated with information security is that the intelligence bedrock upon which the coalition's operations against global terrorism rests could become weakened due to leaks of critical information. The surrender of cutting edge technologies to foreign sources and the increased threat of fighting against U.S.-supplied TPED in the future compose the second major cost, operational security, to the United States. Finally, it is likely that inclusion of TPED in future security assistance programs will incur a financial, training, and logistical cost for the U.S. military at a time when these forces are already stretched thin.

What becomes clear after a thorough review of the potential costs and benefits is that a blanket policy covering all future security assistance transfers of UAV TPED is unrealistic. The security assistance programs have always been handled on a case-by-

case basis, and UAV TPED does not require a change to this process. Under current security assistance legislation each potential security assistance program is weighted on its own merits and a decision to allow the program to continue is made only if the potential benefits to the United States outweigh the associated risks.

Using this construct, the weight associated with each of the potential costs and benefits will change depending almost entirely with the potential security assistance recipient. In those cases where the potential recipient has utilized past security assistance, the hurdle to acquire UAV TPED will be lower. The potential that these nations can provide in the areas of supporting U.S. leadership in the global war on terrorism, maintaining coalition unity of effort, and supporting the defense industrial base in the United States outweigh the potential risks of information security, operational security, and reductions in resources available to fielded American forces.

In those cases, however, where potential coalition partners lack a proven track record, more caution is warranted. These untested nations represent a much larger threat due to their unproven ability to protect the information provided to them through UAV TPED. They also represent a larger operational security risk because of their untested loyalty to the United States-led coalition because of their inexperience with security assistance, these nations may require more financial aid, training, and logistics support to become proficient with the TPED provided by the United States. While these nations hold the potential to help the coalition fight the global war on terrorism, their inexperience with security assistance means the United States must approach the transfer of cutting edge technology, like TPED, with a guarded judgment.

To reap the full potential from future security assistance programs, the United States needs to include the back-end TPED process to its coalition partners in the global war on terror, but the benefits of this decision do not accrue without cost. The United States needs to balance the requests and the attendant security risk of each potential coalition recipient of security assistance TPED on a case-by-case basis. Such a process should allow the United States to increase the interoperability of the coalition, while still maintaining a tight control on security while managing the potential impact on its fielded military force and the potential future threat. The United States should initiate a change in the security assistance program to allow it to transfer TPED in future UAV

programs when the government finds that the potential benefits of such a decision outweigh the potential risks.

## **Conclusions and Implications**

To reap the full potential from future unmanned aerial vehicle (UAV) security assistance, the United States should consider including the tasking, processing, exploitation, and dissemination (TPED) support for sales to its coalition partners in the global war on terror. The rewards of such a change in policy do not accrue without risk. The United States needs to balance the coalition's security assistance requests, and the attendant risks of each potential coalition recipient of security assistance TPED, on a case-by-case basis. Such a process should allow the United States to increase the interoperability of the coalition while still maintaining a tight control on security. The United States should initiate a change in the security assistance program to allow it to transfer TPED in future UAV security assistance programs when the government finds that the potential rewards of such a transfer outweigh the potential risks.

Chapter 1 of this thesis examined the United States' security assistance program, beginning with an assessment of the current program's role in the global war on terrorism. This review examined the rationale behind transfers of military technology and reviewed the history of U.S. security assistance programs to its allies. The history of U.S. security assistance demonstrates how the program has evolved to meet the nation's requirements over time. Today, the global nature of the war on terror requires modifications to security assistance programs to maximize the effectiveness of support provided to coalition partners. The chapter concluded with an examination of the two primary security assistance programs currently in use by the United States to emphasize their critical similarities and differences in strengthening the coalition in the global war on terrorism.

The United States continues to use its security assistance programs to provide allies and coalition partners with military systems. The current security assistance legislation, however, is too rigid and formalized to meet the needs of current and future U.S.-led coalitions against terrorism efficiently and effectively. The critical limitations in the current security assistance programs, most notably their inability to account for the

fluid nature of coalitions and the failure to recognize that modern technology, such as UAVs, may require a different kind of support than their manned predecessors.

The case studies in Chapter 2 emphasized that the United States should include training on and equipment for access to TPED to coalition partners who purchase UAVs through the security assistance program. Currently the United States sells UAVs via the same procedures developed and modified throughout the Cold War. If the coalition in the global war on terror is to use the intelligence collection capabilities of UAVs fully, the associated TPED needs to be included in future security assistance programs. This path entails costs, however, that the United States must balance against the potential benefits to decide whether or not to include TPED as part of security assistance programs. The next chapter explores both the costs and the benefits of including TPED in future UAV security assistance programs.

This thesis argues that TPED is critical to the intelligence interoperability and integrations of the coalition fighting against global terrorism. Chapter 3 of this thesis outlined the TPED process, emphasizing its importance to coalition operations as well as highlighting that a foundation for a potential coalition TPED database exists today. The major hurdle to designing such a TPED system for coalition use, however, is that the United States still has not settled on a common definition of TPED or built such an interoperable database for its domestic intelligence community. The existing U.S. TPED system does not account for several realities, including the capabilities of modern and future intelligence collection platforms such as UAVs. Chapter 3 also provided an overview of how a functioning coalition TPED process should work and suggested that the Department of Defense's (DOD's) Distributed Common Ground Station (DCGS) can serve as a model for coalition TPED. Although the United States has the capability for designing and leading an interoperable coalition TPED process, there are opportunities and potential drawbacks in doing so.

Chapter 4 concludes that including TPED in future sales holds the promise of dramatically increasing the coalition's effectiveness and efficiency in fighting the global war on terrorism. Providing TPED as part of future security assistance sales can help cement American leadership of the coalition by expanding its access and influence while reducing its forward presence, increasing the incentive for otherwise neutral nations to

join the coalition, and by sharing the effort and cost associated with defeating global terrorism across the coalition. The United States can also ensure unity of effort across the coalition utilizing TPED within security assistance by developing the framework needed for improved coalition command decision making, creating an organizational structure to enable unity of effort, and building a common intelligence configuration control architecture for the coalition to utilize as its foundation in the global war on terror. Less critical, but still important, are the economic benefits the United States could derive from including TPED in security assistance programs. Such transfers could provide for the domestic defense industrial base by increasing revenues for defense contractors while also protecting critical defense technologies from foreign encroachment.

These potential benefits do not come without costs to the United States. The risk associated with information security, detailed in Chapter 4, represents the greatest potential impediment to security assistance transfers of TPED technology. The primary risk associated with information security is that the intelligence bedrock upon which the coalition's operations against global terrorism rests could weaken due to leaks of critical information and compromises of sensitive sources and methodologies. The surrender of cutting edge technologies to foreign partners and the increased threat of fighting against U.S.-supplied TPED in the future comprise the second major cost to the United States, namely operational security. Finally, it is likely that inclusion of TPED in future security assistance programs will incur a financial, training, and logistical costs on the U.S. military at a time when these forces are already stretched thin to meet global commitments.

It is clear from a thorough review of the potential costs and benefits that a blanket policy covering all future security assistance transfers of UAV TPED is unrealistic. The security assistance programs have always been handled on a case-by-case basis and UAV TPED does not require a change to this process. Under current security assistance legislation, as detailed in Chapter Two, each potential security assistance program is weighted on its own merits and a decision to allow the program to continue is made only if the potential benefits to the United States outweigh the associated risks.

Using this construct, the weight associated with each of the potential costs and benefits will change depending on each security assistance recipient. In those cases where the recipient has utilized past security assistance responsibility in support of shared goals with the United States, the hurdle to acquire UAV TPED will be lower. On the basis of prior performance, some nations will improve in their level of reward that security assistance aid can provide them. The potential that these nations can augment key areas, such as supporting U.S. leadership in the global war on terrorism, maintaining coalition unity of effort, and supporting the defense industrial base in the United States outweigh the potential risks of information security, operational security, and the resources available to fielded American forces.

In those cases, however, where coalition partners lack a proven track record with regard to security assistance sales, more caution is warranted. These untested nations represent a much larger threat due to their unproven ability to protect the information provided to them through UAV TPED. They also represent a larger operational security risk because their loyalty to the United States-led coalition, or their domestic stability, may be open to question. Also, because of their inexperience with security assistance, these nations will inevitably require more financial aid, training, and logistics support to become proficient with the TPED provided by the United States. Although these nations arguably will be the focus of terrorism sanctuary, support, and/or recruitment, their relative inexperience in dealing responsibly with security assistance means the United States must approach delicately the transfer of cutting edge technology such as TPED.

What should the security assistance framework be for defining interoperability with so many potential coalition partners? It must be built around a modular approach where different levels of releasability and access can be used depending on the coalition partner. The level of trust among partners varies from country to country, so a modular approach enhances the ability to control intelligence operations. Global terrorism remains the most significant asymmetric threat to American interests at home and abroad for the foreseeable future. This threat continues to exist as disgruntled groups and individuals focus on America as the source of their troubles. Most terrorism will be regional in nature and based on perceived racial, ethnic, and/or religious grievances. The characteristics of the most effective terrorist organizations -- highly compartmented

operational planning, good cover and security, extreme suspicion of outsiders, and ruthlessness -- make them very difficult intelligence targets. It is due to the cellular nature of the modern terrorist threat that coalition intelligence operations utilizing American-made UAVs with a common American-designed TPED can be so effective. Without such a coalition intelligence TPED process to provide insights, analysis, and predictions of terrorist activity, one that is accessible by all coalition partners, an effective offense or defense is difficult to develop.

What is the proper balance between the need and desire for interoperability with allies and potential coalition partners on one hand and the need to protect national security related information and technology on the other? National security must be addressed first and foremost when considering coalition interoperability. In other words the need and desire for coalition interoperability must not outweigh the requirement to provide sufficient protection to the nation. Proper measures, including tactics, techniques, procedures, and actual hardware, must be in place to guard against unintentional release of information. The end state for coalition TPED, provided through security assistance, is a secure intelligence database that ensures partners have access to actionable intelligence to enable effective coalition counter-terrorism operations.



## *Bibliography*

- “Bounded Rationality,” *Changing Minds.org*. Online article. URL: [http://changingminds.org/explanations/theories/bounded\\_rationality.htm](http://changingminds.org/explanations/theories/bounded_rationality.htm). Accessed 19 January 2005.
- “Dutch Deploy F-16s to Kyrgyzstan,” *F-16.net* (11 September 2004). Online article. URL: <http://www.f-16.net/modules.php?op=modload&name=News&file=article&sid=1189>. Accessed 23 January 2005.
- “Dutch to Send Six F-16s to Afghanistan for Elections,” *F-16.net* (22 August 2004). Online article. URL: <http://www.f-16.net/modules.php?op=modload&name=News&file=article&sid=1154>. Accessed 23 January 2005.
- “Europe on Alert: Spanish pullout from Iraq would boost risks to coalition partners,” *The Columbus Dispatch*, 17 March 2004. Accessed via LexisNexis, 31 January 2005. URL: [http://web.lexis-nexis.com/universe/document?\\_m=c501b0ae5e960f60c2bfab251f0ba4b6&\\_docnum=1&wchp=dGLbVtz-zSkVb&\\_md5=5d5526b4d8bcd9beba78f4055d9a35d4](http://web.lexis-nexis.com/universe/document?_m=c501b0ae5e960f60c2bfab251f0ba4b6&_docnum=1&wchp=dGLbVtz-zSkVb&_md5=5d5526b4d8bcd9beba78f4055d9a35d4). Accessed 14 January 2005.
- “George Kennan: The Sources of Soviet Conduct (1947),” *The History Guide*. Online article. URL: <http://www.historyguide.org/europe/kennan.html>. Accessed 18 November 2004.
- “Labor demands answers from the US over terror suspect’s visits,” *Australian Associated Press*, 30 January 2004. Accessed via LexisNexis, 31 January 2005. URL: [http://web.lexis-nexis.com/universe/document?\\_m=172689b92beab77bb9726f66a03dd8de&\\_docnum=2&wchp=dGLbVtz-zSkVb&\\_md5=6d942edb0e880a61fca129096340dc9c](http://web.lexis-nexis.com/universe/document?_m=172689b92beab77bb9726f66a03dd8de&_docnum=2&wchp=dGLbVtz-zSkVb&_md5=6d942edb0e880a61fca129096340dc9c). Accessed 16 January 2005.
- “Modernization of the F-16 Fleet,” *International Online Defense Magazine* (17 December 2004). Online article. URL: <http://defense-update.com/features/du-1-04/f-16-upgrades.htm>. Accessed 23 January 2005.
- “The Meaning of Configuration Management,” *Carnegie-Mellon Software Engineering Institute* (9 August 2004). Online article. URL: [http://www.sei.cmu.edu/legacy/scm/tech\\_rep/TR11\\_90/1.1\\_MeaningOfCM.html](http://www.sei.cmu.edu/legacy/scm/tech_rep/TR11_90/1.1_MeaningOfCM.html). Accessed 24 January 2005.

- “The Netherlands: Koninklijke Luchtmacht Royal Netherlands Air Force,” *F-16.net* (22 August 2004). Online article. URL: <<http://www.f-16.net/index.php?module=:pagesetter&func=:printpub&tid=3&pid=8>>. Accessed 23 January 2005.
- “Updating the Concept of Innovation,” *Innovative Technology Transfer* (April 2003). Online article. URL: <<http://aoi.cordis.lu/article.cfm?article=513>>. Accessed 8 January 2005.
- “World Air Forces 2004,” *Flight International*, 16 November 2004. Accessed via LexisNexis, 7 February 2005. URL: <[http://web.lexis-nexis.com/universe/document?\\_m=3b4148289946d2d759d4829890fa25de&\\_docnum=55&wchp=dGLbVzb-zSkVA&\\_md5=3a1ae4d539a15aac4f553163915c91c5](http://web.lexis-nexis.com/universe/document?_m=3b4148289946d2d759d4829890fa25de&_docnum=55&wchp=dGLbVzb-zSkVA&_md5=3a1ae4d539a15aac4f553163915c91c5)>. Accessed on 14 January 2005.
- Air Combat Command. *Concept of Operations for Endurance Unmanned Aerial Vehicles*, Version 2 (3 December 1996). Online edition. URL: <[http://www.fas.org/irp/doddir/usaf/conops\\_uav/part03.htm](http://www.fas.org/irp/doddir/usaf/conops_uav/part03.htm)>. Accessed on 11 April 2005.
- Al Jeeran, Isa Khalifa Abdulla. *The U.S. Arms Sales to the Gulf Cooperation Council States*. Monterey, CA: Naval Postgraduate School, September 1998.
- Barr, Robert. “Global Impact of Sept. 11 Attacks,” *Associated Press*, 31 December 2001. Online article. URL: <<http://www.cbsnews.com/stories/2001/12/19/2001/main321900.shtml>>. Accessed 22 December, 2004.
- Barry, Charles L. and Elihu Zimet. “UCAVs—Technology, Policy, and Operational Changes.” *Defense Horizons* Number 3 (October 2001).
- Baumgardner, Neil. “Lockheed Martin sees potential for up to 400 F016s during transition to JSF,” *Defense Daily*, 27 June 2003. Accessed through LexisNexis on 7 February 2005. URL: <[http://web.lexis-nexis.com/universe/document?\\_m=5d636631b02cccff36f6e6e8f0475c0&\\_docnum=2&wchp=dGLbVzb-zSkVA&\\_md5=de62d1cba0762a0560a561ffc481cb22](http://web.lexis-nexis.com/universe/document?_m=5d636631b02cccff36f6e6e8f0475c0&_docnum=2&wchp=dGLbVzb-zSkVA&_md5=de62d1cba0762a0560a561ffc481cb22)>. Accessed 16 January 2005.
- Beard, Michael N. *United States Foreign Military Sales Strategy: Coalition Building or Protecting the Defense Industrial Base*. Maxwell AFB, AL: Air War College, March 1995.
- Bedi, Rahul. “Vital Intelligence on the Taliban may rest with its prime sponsor – Pakistan’s ISI,” *Jane’s.com* (1 October 2001). Online article. URL: <[http://www.janes.com/security/international\\_security/news/misc/janes011001\\_1\\_n.shtml](http://www.janes.com/security/international_security/news/misc/janes011001_1_n.shtml)>. Accessed on 5 March 2005.
- Bennett, Magnus. “F-16s offer long service life,” *Aerospace Daily and Defense Report* (13 November 2003). Accessed through LexisNexis, 7 February 2005. URL: <[http://web.lexis-nexis.com/universe/document?\\_m=e64eb315eb7c48326215ad0247436607&\\_docnum=54&wchp=dGLbVzb-zSkVA&\\_md5=1e11a7228d6efba1d74cb86520814e9f](http://web.lexis-nexis.com/universe/document?_m=e64eb315eb7c48326215ad0247436607&_docnum=54&wchp=dGLbVzb-zSkVA&_md5=1e11a7228d6efba1d74cb86520814e9f)>. Accessed 16 January 2005.
- Berkowitz, Bruce D. “Information Technology and Intelligence Reform.” *Orbis* Volume 41 (Winter 1997).

- , and Allan E. Goodman. *Best Truth: Intelligence in the Information Age*. New Haven, CT: Yale University Press, 2000.
- Best, Richard A. *Intelligence to Counter Terrorism: Issues for Congress*. Washington, D.C.: Congressional Research Service, 2002.
- Biewer, Matt J., Major, USAF. Chief, Targeting Intelligence Integration and Modernization Branch, Air Force Command and Control and Intelligence, Surveillance and Reconnaissance Center, Langley AFB, VA. Telephone interview by author, 31 January 2005.
- Black, Michael B. *Coalition Command, Control, Communications, Computer, and Intelligence Systems Interoperability: A Necessity or Wishful Thinking?*. Fort Leavenworth, KS: U.S. Army Command and General Staff College, 2000.
- Blaufarb, Douglas S. *The Counterinsurgency Era: U. S. Doctrine and Performance*. New York: Macmillan Publishing Company, 1977.
- Boyne, Walter J. *Operation Iraqi Freedom: What Went Right, What Went Wrong and Why*. New York: Tom Doherty Associates, 2003.
- Bradley, Carl M. *Intelligence, Surveillance, and Reconnaissance in Support of Operation Iraqi Freedom*. Newport, RI: Naval War College, 9 February 2004.
- Buchanan, Water E., Lt General, USAF. "Military Transformation and the United States Air Force." Briefing presented at the 2005 Air Force Defense Strategy and Transformation Seminar Series. Washington, D.C., 5 April 2005.
- Buencamino, Manuel. "The Global Insurgency," *Business World* (28 June 2004). Accessed via LexisNexis, 31 January 2005. URL: <[http://web.lexis-nexis.com/universe/document?\\_m=1ab6449d13e7260de54ec29a6c9e3c3a&\\_docnum=22&wchp=dGLbVtz-zSkVb&\\_md5=d8a7600d09bc2adf49379d41a29b07a8](http://web.lexis-nexis.com/universe/document?_m=1ab6449d13e7260de54ec29a6c9e3c3a&_docnum=22&wchp=dGLbVtz-zSkVb&_md5=d8a7600d09bc2adf49379d41a29b07a8)>. Accessed 16 January 2005.
- Bush, George W., President of the United States, "Address to a Joint Session of Congress and the American People." Briefing presented on Capital Hill, Washington, D.C., 20 September 2001. URL: <<http://www.whitehouse.gov/news/releases/2001/09/20010920-8.html>>. Accessed 12 January 2004.
- Cahill, William, Major, USAF. Chief, International C4ISR Programs, Deputy Undersecretary of the Air Force, International Affairs. Interview by author, 10 December 2004.
- Campbell, Kurt M. and Michele A. Flournoy. "Intelligence: The Long Pole in the Tent," in *To Prevail: An American Strategy for the Campaign Against Terrorism*. Edited by Kurt M. Campbell and Michele A. Flournoy. Washington, D.C.: CSIS Press, 2001.
- Carpenter, Ted G. "The Unintended Consequences of Afghanistan." *World Policy Journal* Volume 11, Issue 1 (Spring 1994).

- Cebrowski, Arthur K. "Special Briefing on Force Transformation" presented at the Pentagon, Washington, D.C., 27 November 2001. Online version. URL: < [http://www.au.af.mil/au/awc/awcgate/transformation/t11272001\\_t1127ceb.htm](http://www.au.af.mil/au/awc/awcgate/transformation/t11272001_t1127ceb.htm)>. Accessed on 30 April 2005
- Central Intelligence Agency. "Intelligence Analysis in the DI: Frequently Asked Questions." Online article. URL: <<http://www.odci.gov/cia/di/work/analyst.html>>. Accessed 14 January 2005.
- . *The World Factbook 2004* (1 January 2004). Online edition. URL: <<http://www.cia.gov/cia/publications/factbook/geos/pk.html>>. Accessed on 24 January 2005.
- Charters, David, and others. *Intelligence Analysis and Assessment*. London: Frank Cass, 1996.
- Clarke, Duncan L., Daniel B. O'Connor, and Jason D. Ellis. *Send Guns and Money: Security Assistance and U. S. Foreign Policy*. Hartford, Connecticut: Praeger, 1997.
- Codner, Michael. *Hanging Together: Military Interoperability in an Era of Technological Innovation*. London: Royal United Services Institute for Defence Studies, 2003.
- Coll, Steve. *Ghost Wars: The Secret History of the CIA, Afghanistan, and bin Laden, from the Soviet Invasion to September 10, 2001*. New York: Penguin Press, 2004.
- Corum, James S. and Wray R. Johnson. *Airpower in Small Wars: Fighting Insurgents and Terrorists*. Lawrence, Kansas: University Press of Kansas, 2003.
- Combs, Cindy C. *Terrorism in the Twenty-First Century*. Upper Saddle River, NJ: Prentice Hall, 2003.
- Commission on the Intelligence Capabilities of the United States Regarding Weapons of Mass Detruction, The. *Report to the President of the United States* (31 March 2005). Online edition. URL: < <http://www.gpoaccess.gov/wmd/>>. Accessed on 11 April 2005.
- Cook, Cynthia R., and others. *Assembling and Supporting the Joint Strike Fighter in the UK: Issues and Costs*. Santa Monica, CA: RAND, 2003.
- Cordesman, Anthony H. *Saudi Arabia Enters the 21<sup>st</sup> Century: The Military and Internal Security Dimension*. Washington, D.C.: Center for Strategic and International Studies, 30 October 2002.
- Crenshaw, Martha. "The Psychology of Terrorism: An Agenda for the 21st Century." *Political Psychology*, Volume 21 Issue 2, June 2000.
- De Alicante, Tony F. *Other Costs of Coalition Building – How to Buy Friends and Intimidate (Former) Enemies*. Newport, RI: Naval War College, 15 May 2002.

- Defense Institute of Security Assistance Management. *The Management of Security Assistance*. Wright-Patterson AFB, OH: Defense Institute of Security Assistance Management, June 2001.
- Delgrego, William J. *The Diffusion of Military Technology to Foreign Nations*. Maxwell AFB, AL: School of Advanced Air and Space Studies, March 1996.
- Department of Defense Dictionary of Military Terms. Online edition (as amended through 30 November 2004). URL: < <http://www.dtic.mil/doctrine/jel/doddict/data/a/00330.html>>. Accessed on 7 January 2005.
- . Department of Defense Directive 5100.1, *Functions of the Department of Defense and Its Major Components*. Washington D.C.: Government Printing Office, 21 November 2003.
- . *Defense Language Transformation Roadmap* (January 2005). Online edition. URL: < <http://www.defenselink.mil/news/Mar2005/d20050330roadmap.pdf>>. Accessed 11 April 2005.
- Dewitte, Lieven and Stefaan Vanhastel. "F-16 MLU," *F-16.net* (21 September 2004). Online article. URL: <[http://www.f-16.net/f-16\\_versions\\_article2.html](http://www.f-16.net/f-16_versions_article2.html)>. Accessed on 23 January 2005.
- Diamond, John. "Pentagon Plumbs Lessons From War." *Chicago Tribune* (14 January 2002). Online article. URL: < <http://www.globalsecurity.org/org/news/2002/020114-attack02.htm>>. Accessed 16 March 2005
- Dobson, Alan P. *US Wartime Aid to Britain, 1940-1946*. New York: St. Martin's Press, 1986.
- Duffy, Gary. "'Boneyard' May Keep D-M Alive," *Tucson Citizen* (10 May 2004). Online edition. URL: <[http://www.tucsoncitizen.com/index.php?page=east\\_tucson&story\\_id=est1\\_amarc](http://www.tucsoncitizen.com/index.php?page=east_tucson&story_id=est1_amarc)>. Accessed 23 January 2005.
- Eisenhower, Dwight. Message from President Eisenhower to the Congress (5 Jan 1957). Online article. URL: <<http://www.jewishvirtuallibrary.org/jsource/US-Israel/ikedoc.html>>. Accessed on 18 November 2004.
- Farson, A. Stuart, and others. *Security and Intelligence in a Changing World*. London: Frank Cass, 1991.
- Federation of American Scientists. *Tasking, Processing, Exploitation, and Dissemination (TPED) Analysis Process* (13 September 2000). Online article. URL: < <http://www.fas.org/irp/program/core/tped.htm>>. Accessed on 11 April 2005.
- Feith, Douglas J. "Invest in Solidarity." *The Wall Street Journal*, Final Edition, 18 April 2005, A18+.
- Ferrari, Paul L., Jeffrey W. Knopf, and Raul L. Madrid. *U.S. Arms Export Policies and Contractors*. New York: Investor Research Center, 1987.

- Ferris, John. "A New American Way of War? C4ISR, Intelligence and Information Operations in Operation 'Iraqi Freedom': A Provisional Assessment," *Intelligence and National Security*. Volume 18 Number 4, December 2003.
- Floden, Erik. "Arms Trade News," *Arms Trade Oversight Project* (July 2001). Online article. URL: < <http://www.clw.org/cat/atn0701.html>>. Accessed on 23 January 2005.
- Furlong, Ronald L. *Future Coalitions – Learning From the Past, Looking to the Future and Listening to our Allies*. Newport, RI: Naval War College, 18 May 1998.
- Gabelnick, Tamar. "Security Assistance After September 11," *Foreign Policy In Focus* (Volume 7, Number 4, May 2002). Online edition. URL: < <http://fas.org/asmp/library/articles/fpif-911.htm>>. Accessed 7 January 2005.
- Gaddis, John Lewis. *Strategies of Containment*. Oxford: Oxford University Press, 1982.
- Gamble, Andrew and Tony Wright. "The Fallout from Iraq," *The Political Quarterly*. Volume 75 number 3, July 2004.
- Gansler, Jacques S. "Technology, Future Warfare, and Transatlantic Cooperation." Presented to the Future NATO Workshop, Norfolk, VA, 1998.
- Gertz, Bill. *Breakdown: The Failure of American Intelligence to Defeat Global Terror*. New York: Plume Book, 2003.
- Gottemoeller, Rose E. "Arms Control in a New Era," *The Washington Quarterly* (Spring 2002). Volume 25, Number 2, 45-49.
- Greene, Gus E. *Distributed Collaborative Analysis: A New Approach for Intelligence Analysis*. Carlisle Barracks, PA: Army War College, 2001.
- Gultekin, Metin. *Foreign Military Sales Versus Direct Commercial Sales*. Monterey, CA: Naval Postgraduate School, September 1998.
- Hains, Thomas J. *The Widening Gap of Interoperability Between US and Coalition/Allied Communications Systems*. Newport, RI: Naval War College, 13 June 1997.
- Haynes, Jacob N., Colonel, USA. *Foreign Military Sales: Shaping Foreign Policy and Enhancing the Industrial Base*. Carlisle Barracks, PA: Army War College, 2001.
- Harris, Robin. "The State of the Special Relationship." *Policy Review*, number 113 (June 2002). Online article. URL: <[http://www.policyreview.org/JUN02/harris\\_print.html](http://www.policyreview.org/JUN02/harris_print.html)>. Accessed 13 January 2005.
- Hartung, William D. *And Weapons for All*. New York: Harper Collins Publishers, 1994.
- Havens, Steven W. *Analysis of Technology for North Atlantic Treaty Organization Interoperability*. Rome, NY: Air Force Research Laboratory, February 2003.

- Hehs, Eric. "MidLife Update F-16s Reach Maturity," *Code One Magazine Online* (January 1998). Online article. URL: <[http://www.codeonemagazine.com/archives/1998/articles/jan\\_98/jan\\_98\\_p.html](http://www.codeonemagazine.com/archives/1998/articles/jan_98/jan_98_p.html)>. Accessed 23 January 2005.
- Henderson, Darrall. *Modeling a Strategy for the War on Terrorism*. Carlisle Barracks, PA: Army War College, 2002.
- Herman, Michael. "11 September: Legitimizing Intelligence?," *Conflict Studies Research Center*. Online article. Sandhurst, U.K.: Royal Military Academy, August 2002.
- , *Intelligence Services in the Information Age*. London: Frank Cass, 2001.
- Herritage, Allen. "U.S., Dutch Pilots Train Together," *Air Force Print News* (16 September 2003). Online article. URL: <[http://www.af.mil/news/story\\_print.asp?storyID=123005621](http://www.af.mil/news/story_print.asp?storyID=123005621)>. Accessed 23 January 2005.
- Hoover, Lloyd N. *Military Assistance and the Nixon Doctrine*. Maxwell AFB, AL: Air War College, April 1971.
- Howard, Peter. "Confronting Iraq: US-European Relations," *Washington Post* (18 March 2003). Accessed via LexisNexis, 18 December 2004. URL: <[http://discuss.washingtonpost.com/wp-srv/zforum/03/sp\\_world\\_howard031803.htm](http://discuss.washingtonpost.com/wp-srv/zforum/03/sp_world_howard031803.htm)>. Accessed on 18 January 2005.
- Hunt, Peter C. *Coalition Warfare: Considerations for the Air Component Commander*. Maxwell AFB, AL: School of Advanced Air and Space Studies, March 1998.
- Independent Commission on the National Imagery and Mapping Agency, The. *Final Report of the Independent Commission on the National Imagery and Mapping Agency* (December 2000). Online edition. URL: <<http://www.fas.org/irp/agency/nima/commission/>>. Accessed 18 December 2004.
- Irwin, Michael R. "The Philippines: A Brief Tour Through Time." Online article. URL: <<http://www.geocities.com/Tokyo/Towers/4385/ph02001.htm#America1st>>. Accessed 18 November 2004.
- Jabour, Ginger. "F-16 Technology links allied nation's aircraft," *US Fed News* (27 May 2004). Accessed through LexisNexis, 7 February 2005. URL: <[http://web.lexis-nexis.com/universe/document?\\_m=ec3f5ece07658a3a9f76f020fa780a34&\\_docnum=4&wchp=dGLbVzb-zSkVA&\\_md5=0d1814e2a613ce319bb963b93d572711](http://web.lexis-nexis.com/universe/document?_m=ec3f5ece07658a3a9f76f020fa780a34&_docnum=4&wchp=dGLbVzb-zSkVA&_md5=0d1814e2a613ce319bb963b93d572711)>. Accessed 14 January 2005.
- Jehl, Douglas, and David E. Sanger. "U.S. Expands List of Lost Missiles," *New York Times* (6 November 2004). Online edition. URL: <[http://www.crows.org/ADVOCACY/Legislative/ManPads/NYTimes\\_11062004.pdf](http://www.crows.org/ADVOCACY/Legislative/ManPads/NYTimes_11062004.pdf)>. Accessed 26 November 2004.
- Johnson, David. "World Trade Center History," *Infoplease*. Online article. URL: <<http://www.infoplease.com/spot/wtc1.html>>. Accessed 15 January 2005.

- Johnson, Nettie. "Lockheed Martin Delivers 1600th LANTIRN Targeting Pod," *Lockheed Martin Missiles and Fire Control* (15 December 1999). Online article. URL: <[http://www.missilesandfirecontrol.com/our\\_news/pressreleases/99pressrelease/121599\\_LANTIRN.htm](http://www.missilesandfirecontrol.com/our_news/pressreleases/99pressrelease/121599_LANTIRN.htm)>. Accessed 23 January 2005.
- Johnson, Rebecca and Micah Zenko. "All Dressed Up and No Place to Go: Why NATO Should Be on the Front Lines in the War on Terror," *Parameters* (Winter 2002). Online article. URL: <<http://www.carlisle.army.mil/usawc/Parameters/02winter/johnson.pdf>>. Accessed 5 May 2005.
- Joint Chiefs of Staff. Joint Publication 3-16, *Joint Doctrine for Multinational Operations*. Washington, D.C.: Government Printing Office, 5 April 2000.
- Joint Publication 2-0, *Doctrine for Intelligence Support to Joint Operations*. Washington, D.C.: Government Printing Office, 9 March 2000.
- Joint Publication 2-01, *Joint and National Intelligence Support to Military Operations*. Washington, D.C.: Government Printing Office, 7 October 2004.
- Joint Publication 3-16, *Joint Doctrine for Multinational Operations*. Washington, D.C.: Government Printing Office, 5 April 2000.
- *The National Military Strategy of the United States of America*. Washington, D.C.: Joint Chiefs of Staff, 28 September 2002.
- Jones, Howard. *A New Kind of War*. New York: Oxford University Press, 1989.
- Jones, Samuel L. *An Analysis of Foreign Military Sales Management Viewed at the Field Activity Level*. Monterey, CA: Naval Postgraduate School, September 1979.
- Jordan, Tim. *Unmanned Aerial Vehicles: Role in Homeland Defense*. Maxwell AFB, AL: Air Command and Staff College, 2003.
- Katzenstein, Peter J. "September 11 in Comparative Perspective: The Antiterrorism Campaigns of Germany and Japan," *Cambridge Journal*. Online article. URL: <<http://journals.cambridge.org/bin/bladerunner?30REQEVENT=&REQAUTH=0&500001REQSUB=&REQSTR1=S7777777702000043>>. Accessed on 5 May 2005.
- Kennedy, Paul and others, *The Age of Terror*. New York: Basic Books, 2001.
- Kington, Tom. "Italy to Send its New Predator UAVs to Iraq," *DefenseNews.com* (11 January 2005). Online article. URL: <<http://www.defensenews.com/story.php?F=593973&C=europe>>. Accessed 23 January 2005.
- "Italian Predators patrol Iraq," *C4ISR Journal* Volume 4, Number 3 (April 2005), 42-43.
- Kraemer, Eric A. *The Systemic Basis of American Power*. Washington, D.C.: National Defense University, 24 September 1999.

- Labrie, Roger P. and others. *U.S. Arms Sales Policy*. Washington, D.C.: American Enterprise Institute for Public Policy, 1982.
- Lansford, Tom. *All for One: Terrorism, NATO, and the United States*. Burlington, VT: Ashgate Publishing Limited, 2002.
- LeBouvier, Rand D. *Extending Operational Reach with Unmanned Systems*. Newport, RI: Naval War College, 16 May 2003.
- Lesser, Victor. "Cooperative Distributed Problem Solving," *Multi-Agent Systems Lab*. Online article. URL: <<http://dis.cs.umass.edu/research/cdps/>>. Accessed 19 January 2005.
- Linn, Brian McAllister. *The Phillipine War, 1899-1902*. Lawrence, KS: University Press of Kansas, 2000.
- Lobe, Jim. "Budget Priorities Reminiscent of Cold War." *Common Dreams Newscenter* (4 February 2004). Online article. URL: <<http://www.commondreams.org/headlines04/0204-04.htm>>. Accessed 16 March 2005
- Longo, Dean. *Chaotic Arms Control: Decision Making for the Post-Cold War*. Maxwell AFB, AL: Air Command and Staff College, April 1996.
- Lowenthal, Mark M. *Intelligence, From Secrets to Policy*. Washington, D.C.: Congressional Quarterly Press, 2003.
- Lumpe, Lora. "Clinton's Conventional Arms Export Policy," *Arms Control Today* (May 1995). Online article. URL: <<http://www.fas.org/asmp/library/articles/actmay95.html>>. Accessed 21 November 2004.
- Luttwak, Edward N. *Strategy: The Logic of War and Peace*. Cambridge, MA: The Belknap Press of Harvard University Press, 2003.
- Mandel, Robert. "Exploding Myths About Global Arms Transfers," *The Journal of Conflict Studies* Vol. XVIII No. 2 (Fall 1998). Online edition. URL: <<http://www.lib.unb.ca/Texts/JCS/bin/get.cgi?directory=FALL98/articles/&filename=Mandel.htm>>. Accessed 13 January 2005.
- Mark, Clyde R. "Israeli-United States Relations." *CRS Issue Brief for Congress* (5 April 2002). Online Article. URL: <<http://www.fas.org/asmp/resources/govern/crs-IB82008.pdf>>. Accessed 13 January 2005.
- McGovern, Susan C. *Information Security Requirements for a Coalition Wide Area Network*. Monterey, CA: Naval Postgraduate School, June 2001.
- McKenzie, Patrick T. *UAVS: An Airborne Tactical Air Control Party*. Maxwell AFB, AL: Air Command and Staff College, April 2001.

- Mitchell, Alison. "House Panel Calls for 'Cultural Revolution' in F.B.I. and C.I.A.," *The New York Times* (3 October 2001). Online edition. URL: <<http://query.nytimes.com/gst/abstract.html?res=F40616FF3A590C708CDDA90994D9404482&incamp=archive:search>>. Accessed on 14 January 2005.
- Moseley, T. Michael, General, USAF. *Operation Iraqi Freedom – By the Numbers*. Online edition. U.S. Central Command Air Forces, Assessment and Analysis Division (30 April 2003). URL: <[http://www.globalsecurity.org/military/library/report/2003/uscentaf\\_oif\\_report\\_30apr2003.pdf](http://www.globalsecurity.org/military/library/report/2003/uscentaf_oif_report_30apr2003.pdf)>. Accessed 13 December 2004.
- Moses, R.L. *Trade Offsets in Foreign Military Sales – The F/A-18 Program*. Monterey, CA: Naval Postgraduate School, 1987.
- Nartker, Mike. "MTCR Members Amend Missile Nonproliferation Guidelines; Include 'Catch-All' Provisions," *Global Security Newswire* (30 September 2003). Online edition. URL: <[http://www.nti.org/d\\_newswire/issues/2003/9/30/11s.html](http://www.nti.org/d_newswire/issues/2003/9/30/11s.html)>. Accessed on 7 February 2005.
- National Imagery and Mapping Agency, *Geospatial Intelligence Capstone Document*. Washington, D.C.: Government Printing Office, 2003.
- North Atlantic Council. *UAV Interoperability in NATO Joint Operating Environment*. Brussels, Belgium: North Atlantic Council, 1998.
- North Atlantic Treaty Organization. *NATO Standardization Agreements* (18 February 2005). Online index. URL: <[www.nato.int/docu/standard.htm](http://www.nato.int/docu/standard.htm)>. Accessed 13 January 2005.
- Office of Homeland Security. *National Strategy for Homeland Security*. Washington, D.C.: Government Printing Office, July 2002.
- Ormond, Valerie A. *The Role of Intelligence Analysis in the War on Terrorism*. Carlisle Barracks, PA: Army War College, 2002.
- Paige, Emmett. "The Rapid Expansion of Intelink." Prepared remarks to the Intelink Mission Support Conference, San Diego, 11 June 1996. URL: <<http://www.fas.org/irp/program/disseminate/intelink.htm>>. Accessed 20 January 2005.
- Paramalee, Patricia J. "NATO F-16s Test Link 16 Data Link System," *Aviation Week and Space Technology* (29 September 2003). Accessed through LexisNexis, 7 February 2005. URL: <[http://web.lexis-nexis.com/universe/document?\\_m=655e925e6092fae9ef126a23f5670bb5&\\_docnum=88&wchp=dGLbVzb-zSkVA&\\_md5=d0b98afae45943fe000a014197128b65](http://web.lexis-nexis.com/universe/document?_m=655e925e6092fae9ef126a23f5670bb5&_docnum=88&wchp=dGLbVzb-zSkVA&_md5=d0b98afae45943fe000a014197128b65)>. Accessed 14 January 2005.
- Perl, Raphael and others, "Terrorist Attack on USS Cole: Background and Issues for Congress," *CRS Report for Congress*. Washington, D.C.: Congressional Research Service, 30 January 2001. URL: <<http://news.findlaw.com/cnn/docs/crs/coleterrattck13001.pdf>>. Accessed 15 January 2005.

- Perry, William J. "U.S. Military Acquisition Policy," *Comparative Strategy* Volume 13 (January-March 1994).
- Peters, John E. and others. *European Contributions to Operation Allied Force: Implications for Transatlantic Cooperation*. Santa Monica, CA: RAND, 2001.
- Phinney, Todd R. *Airpower Versus Terrorism: Three Case Studies*. Maxwell AFB, AL: School of Advanced Air And Space Studies, June 2003.
- Prados, Alfred B. "Saudi Arabia: Current Issues and U.S. Relations." *Congressional Research Service*. Washington, D.C.: Government Printing Office, 6 March 2002.
- Pudas, Terry J. "Coalition Warfare: Preparing the U.S. Commander for the Future," in *Essays on Strategy XI*. Edited by John N. Petrie. Washington, D.C.: Government Printing Office, 1994.
- Radvanyi, Richard A. *Operation Eagle Claw: Lessons Learned*. Quantico, VA: United States Marine Corps Command and Staff College, 2002.
- Ramey, Eliot S. *UAVs: Airpower on the Cheap or Serious Airpower Capability?*. Maxwell AFB, AL: Air Command and Staff College, April 2003.
- Ressa, Maria. "Indonesia: A Haven for al Qaeda?," *CNN.com* (20 March 2002). Online article. URL: < <http://edition.cnn.com/2002/WORLD/asiapcf/southeast/03/20/gen.indon.alqaeda/>>. Accessed 5 March 2005.
- Reynolds, David. "Marshall Plan Commemorative Section," *Foreign Affairs* (May/June 1997). Online edition. URL:<<http://www.foreignaffairs.org/19970501faessay3823-p30/david-reynolds/marshall-plan-commemorative-section-the-european-response-primacy-of-politics.html>>. Accessed 20 November 2004.
- Rich, Anna. "U.S. Exports Arms to the World." *Third World Traveler* (May 1999). Online article. URL: < [http://www.thirdworldtraveler.com/Pentagon\\_military/USArmsExports\\_World.html](http://www.thirdworldtraveler.com/Pentagon_military/USArmsExports_World.html)>. Accessed 5 January 2005.
- Rider, Edwin W. and Fred A. Logan. *The Background and an Analysis of the International Security Assistance and Arms Control Act of 1976*. Maxwell AFB, AL: School of Systems and Logistics, September 1977.
- Roosevelt, Franklin D. *Annual State of the Union Speech*. Online speech. Washington, D.C., 6 January 1941. URL: <<http://www.libertynet.org/~edcivic/fdr.html>>. Accessed 18 November 2004.
- , *Fireside Chat on National Security and the Common Cause*. Online speech. Washington, D.C., 29 December 1940. URL: < <http://www.ibiblio.org/pha/7-2-188/188-21.html>>. Accessed 18 November 2004.

- *Message to the Congress, Informing Them of the Exchange of Certain Overage Destroyers for British Naval and Air Bases*. Online article. Washington, D.C., 3 September 1940. URL: < <http://www.ibiblio.org/pha/7-2-188/188-19.html>>. Accessed 18 November 2004.
- Rowe, Paul R. *National Strategy for Combating Terrorism: Prospects and Implications*. Monterey, CA: Naval Postgraduate School, December 2003.
- Sanders, Ralph. "UAVs: An Israeli Military Innovation." *Joint Forces Quarterly* (Winter 2002-2003). Online Article. URL: < [http://www.dtic.mil/doctrine/jel/jfq\\_pubs/2033.pdf](http://www.dtic.mil/doctrine/jel/jfq_pubs/2033.pdf)>. Accessed 13 January 2005.
- Schultz, Richard H. *The Secret War Against Hanoi*. New York: Harper Collins, 1999.
- Semmel, Andrew K. *Security Assistance as an Instrument of Policy*. Maxwell AFB, AL: Air University Airpower Symposium, December 1983.
- Schneiderman, Ron. "High-Flying Defense Systems Poised to Take-Off." *Electronic Design* (16 June 2003). Online article. URL: <<http://elecdesign.com/Articles/Index.cfm?AD=1&ArticleID=5073>>. Accessed 16 March 2005.
- Schwartz, Karl. "Lockheed Martin F-16 Fights On," *Flug Review* (December 1998). Online article. URL: <<http://www.flug-revue.rotor.com/FRheft/FRH9812/FR9812a.htm>>. Accessed 23 January 2005.
- Sgarlata, Jeffrey R., Captain, USAF. Instructor, Intelligence Sensor Weapons Instructor Course, USAF Weapons School, Nellis AFB, NV. Telephone interview by the author, 11 February 2005.
- Shaw, Carol E. *Impact of National Culture in Foreign Military Sales Programs: A Case Study of the Swiss and Finnish F/A-18 Foreign Military Sales*. Monterey, CA: Naval Postgraduate School, December 1996.
- Shen, Dingli. "Are Alliances Useful Anymore," *The Washington Quarterly* (Vol 27, No 2, Spring 2004). Accessed via LexisNexis, 31 January 2005. URL: < [http://web.lexis-nexis.com/universe/document?\\_m=6f1cc0e197939c6f0bf5e3c744696429&\\_docnum=2&wchp=dGLbVtz-zSkVb&\\_md5=336a75b72272a4b6cd58612d39817b5e](http://web.lexis-nexis.com/universe/document?_m=6f1cc0e197939c6f0bf5e3c744696429&_docnum=2&wchp=dGLbVtz-zSkVb&_md5=336a75b72272a4b6cd58612d39817b5e)>. Accessed 16 January 2005.
- Sidari, Brian, Captain, USAF. Headquarters, Air Force, MQ-1 and MQ-9 Predator Functional Manager. Pentagon: Washington, D.C. Interview by author, 8 November 2004.
- United States Air Force MQ-1 and MQ-9 Predator Functional Manager, Headquarters United States Air Force. E-mail to author, subject: "Did this happen?," 25 January 2005.
- United States Air Force MQ-1 and MQ-9 Predator Functional Manager, Headquarters United States Air Force. E-mail to author, subject: "Current Status of the Italian Preds," 24 January 2005.

- Smitham, Matthew C. *The Unmanned Aerial Vehicle: A Prediction of a New Air Force Culture*. Maxwell AFB, AL: Air Command and Staff College, 2004.
- Soto, John. Raytheon Corporation Manager, Air Force Battle Management Programs, Alexandria, VA. Telephone interview by the author, 31 January 2005.
- Spear, Joanna. *Carter and Arms Sales*. New York: MacMillian Publishing, 1995.
- Steele, Robert D. *The New Craft of Intelligence: Achieving Asymmetric Advantage in the Face of Nontraditional Threats*. Carlisle Barracks, PA: U.S. Army War College, February 2002.
- Stijger, Eric. "Operation Allied Force," *Code One Magazine* (July 1999). Online article. URL: <[http://www.codeonemagazine.com/archives/1999/articles/jul\\_99/jul2a\\_99.html](http://www.codeonemagazine.com/archives/1999/articles/jul_99/jul2a_99.html)>. Accessed on 7 February 2005.
- Strassler, Robert B. *The Landmark Thucydides*. New York: Simon and Schuster, 1996.
- Sumilas, Joseph. *Intelligence in NATO: A New Paradigm*. Carlisle Barracks, PA: Army War College, 2000.
- Thompson, Jake. "New focus proposed for NATO," *Omaha World Herald* (24 January 2004). Accessed via LexisNexis, 31 January 2005. URL: <[http://web.lexis-lexis.com/universe/document?\\_m=5986cfcdb6f1b14c5cedb506ad59562&\\_docnum=5&wchp=dGLbVtz-zSkVb&\\_md5=c7988efdec346cd4736a9249caebfd61](http://web.lexis-lexis.com/universe/document?_m=5986cfcdb6f1b14c5cedb506ad59562&_docnum=5&wchp=dGLbVtz-zSkVb&_md5=c7988efdec346cd4736a9249caebfd61)>. Accessed 14 January 2005.
- Thompson, Kenneth W. *Arms Control: Alliances, Arms Sales, and the Future*. Lanham, MD: University Press of American, 1999.
- Thompson, Mark. "Going Up Up in Arms," *Time Magazine* (Issue 144, no 24) 12 December 1994.
- U.S. Air Force. Air Force Doctrine Document 2-5.2, *Intelligence, Surveillance, and Reconnaissance Operations*. N.P., 21 April 1999.
- U.S. Congress, House. Committee on Government Reform, Subcommittee on Technology, Information Policy, Intergovernmental Relations, and the Census, Cyber Security. *The Challenges Facing Our Nation in Critical Infrastructure Protection*. Online edition. URL: <[http://www.ists.dartmouth.edu/text/ISTS/ists\\_docs/testimony.php](http://www.ists.dartmouth.edu/text/ISTS/ists_docs/testimony.php)>. 108th Congress, 1st Session, 8 April 2003. Accessed 14 January 2005.
- , House. Select Committee on Intelligence. *Intelligence Authorization Act for Fiscal Year 1997*. 104th Congress, 2nd session, 1996. House Report 104-578.
- , *Mutual Defense Act of 1949*. Washington, D.C.: Government Printing Office, 1949.
- , Senate Armed Services Committee. *Statement of Lieutenant General Marvin R. Esmond, Deputy Chief of Staff, Air and Space Operations, United States Air Force*. 104th Congress, 1st session, 19 October 1999. URL: <

- <http://www.fas.org/man/congress/1999/99-10-19esmond.htm>>. Accessed on 14 January 2005.
- , Senate Armed Services Committee, Strategic Forces Subcommittee. Statement of General James E. Cartwright, Commander, United States Strategic Command. 106th Congress, 1st session, 4 April 2005.
- , Senate Select Committee on Intelligence. *Intelligence Authorization for FY2001*. 106th Congress, 1st session, Report 106-279, 4 May 2000. URL: <[http://www.fas.org/irp/congress/2000\\_rpt/sl 06-279.html](http://www.fas.org/irp/congress/2000_rpt/sl%2006-279.html)>. Accessed 14 January 2005.
- , Senate, Armed Services Committee. *Statement of Dr. Stephen A. Cambone , Undersecretary of Defense for Intelligence*. 109th Congress, 1st session, 7 April 2004.
- , "The Peace, Prosperity, and Democracy Act of 2004." Washington, D.C.: Government Printing Office, 1994.
- , *Conference Report on International Security Assistance and Arms Control Export Act of 1976*. Washington, D.C.: Government Printing Office, 1976.
- , *Foreign Assistance Act of 1961*. Washington, D.C.: Government Printing Office, 1961.
- , *Foreign Assistance Act of 1973*. Washington, D.C.: Government Printing Office, 1973.
- U.S. Consulate, Mumbai-India. "Myers says Coalition Partners Committed to Defeating Terrorism," (26 February 2004). Online edition. URL: <<http://mumbai.usconsulate.gov/wwwwashnews1398.html>>. Accessed 19 December 2004.
- U.S. Department of Defense. *Department of Defense Federal Acquisition Supplement*. Chicago: Commerce Clearing House, Inc., 1990.
- , *Directive Number 2010.6*, "Standardization and Interoperability of Weapons Systems and Equipment within the North Atlantic Treaty Organization," (5 March 1980). URL: <[http://www.dtic.mil/whs /directives/corres/pdf2/d20106p.pdf](http://www.dtic.mil/whs/directives/corres/pdf2/d20106p.pdf)>. Accessed 12 December 2004.
- U.S. Department of State and Defense Security Assistance Agency. *Congressional Presentation for Security Assistance Program FY92*. Washington, D.C.: Government Printing Office, 1991.
- U.S. Department of State. *Dispatch, U.S. Conventional Arms Transfer Policy* Vol. 6, No. 9 (27 February 1995).
- , *Patterns of Global Terrorism, 2002*. Washington, D.C.: Government Printing Office, May 2002.
- U.S. General Accounting Office. *Department of Defense Savings From Export Sales Are Difficile to Capture*. Report to the Chairman and Ranking Minority Member,

- Subcommittee on Readiness and Management Support, Committee on Armed Services, U.S. Senate. GAO/NSIAD-99-191, September 1999.
- United States Army Security Assistance Command. *United States Army Security Assistance Portal*. Online article. URL: <<https://usasa.army.mil/About/definition.htm>>. Accessed 14 December 2004.
- United States Code. "Section 2656f. Annual country reports on terrorism," *FindLaw.com*. Online legislation. URL: <[http://caselaw.lp.findlaw.com/cascode/uscodes/22/chapters/38/sections/section\\_2656f.html](http://caselaw.lp.findlaw.com/cascode/uscodes/22/chapters/38/sections/section_2656f.html)>. Accessed 15 January 2005
- United States Embassy, Japan. "Myers says Coalition Partners Committed to Defeating Terrorism." Online transcript. URL: <<http://japan.usembassy.gov/e/p/tp-20040227-14.html>>. Accessed 14 January 2005.
- Vandegrift, Robert L. "The LOA Process." Speech delivered to the Eighth Air University Airpower Symposium. Maxwell AFB, AL: Air War College, 5-7 March 1984.
- Walter J. Boyne. *Operation Iraqi Freedom: What Went Right, What Went Wrong and Why*. New York: Tom Doherty Associates, 2003.
- Weatherington, Dyke. Undersecretary for Defense, Acquisition Technology and Logistics. "Background Paper on Predator UAV Sale to Italy," 16 Sep 2002.
- Weiner, Tim. "U.S. Will Try to Buy Antiaircraft Missiles Back from Afghans," *The New York Times* (24 July 1993).
- Werenskjold, Craig J. *The Effect of Unmanned Aerial Vehicle Systems on Precision Engagement*. Monterey, CA: Naval Postgraduate School, June 2002.
- Wheatley, William M. *Partnership for Peace in a New Millenium*. Carlisle Barracks, PA: U.S. Army War College, 10 April 2001.
- White House, The. *Fact Sheet on Conventional Arms Transfer Policy 2.17.95*. Washington, D.C.: Office of the Press Secretary, 17 February 1995.
- , *National Security Strategy of the United States*. Washington, D.C.: White House Printing Office, September 2002.
- , *National Strategy for Combating Terrorism*. Washington, D.C.: White House Printing Office, February 2003.
- , *Presidential Policy on Offsets in Military Exports*. Washington, D.C.: Government Printing Office, 16 April 1990.
- , "NSC History." Online article. URL: <<http://www.whitehouse.gov/nsc/history.html>>. Accessed 18 November 2004.

Woodward, Michael K. *An Analysis of the Impact of Offset Requirements on U.S. and Defense Industry*. Monterey, CA: Naval Postgraduate School, March 1995.

Yee, Ken. "DoDIIS Trusted Workstation." Briefing presented at the AFC2ISRC Warfighter Conference, Langley AFB, VA on 15 November 2004.